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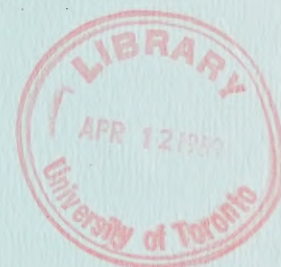


ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 87

DATE: Thursday, April 6th, 1989

BEFORE: M.I. JEFFERY, Q.C., Chairman
E. MARTEL, Member
A. KOVEN, Member



FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

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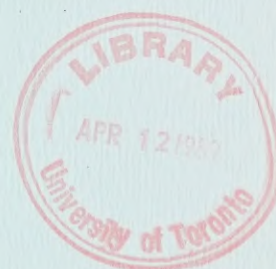
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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council
(O.C. 2449/87) authorizing the
Environmental Assessment Board to
administer a funding program, in
connection with the environmental
assessment hearing with respect to the
Timber Management Class
Environmental Assessment, and to
distribute funds to qualified
participants.

Hearing held at the Ramada Prince Arthur
Hotel, 17 North Cumberland St., Thunder
Bay, Ontario, on Thursday, April 6th,
1989, commencing at 9:00 a.m.

VOLUME 87

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member

A P P E A R A N C E S

MR. V. FREIDIN, Q.C.)	MINISTRY OF NATURAL
MS. C. BLASTORAH)	RESOURCES
MS. K. MURPHY)	
MS. Y. HERSCHER)	
MR. B. CAMPBELL)	MINISTRY OF ENVIRONMENT
MS. J. SEABORN)	
MR. R. TUER, Q.C.)	ONTARIO FOREST INDUSTRY
MR. R. COSMAN)	ASSOCIATION and ONTARIO
MS. E. CRONK)	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY)	ASSOCIATION
MR. J. WILLIAMS, Q.C.	ONTARIO FEDERATION OF
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MR. J.F. CASTRILLI)	
MS. M. SWENARCHUK)	FORESTS FOR TOMORROW
MR. R. LINDGREN)	
MR. P. SANFORD)	KIMBERLY-CLARK OF CANADA
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MR. B. McKERCHER)	OUTFITTERS ASSOCIATION
MR. L. GREENSPOON)	NORTHWATCH
MS. B. LLOYD)	

APPEARANCES: (Cont'd)

MR. J.W. ERICKSON, Q.C.) MR. B. BABCOCK)	RED LAKE-EAR FALLS JOINT MUNICIPAL COMMITTEE
MR. D. SCOTT) MR. J.S. TAYLOR)	NORTHWESTERN ONTARIO ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL) MR. S.M. MAKUCH)	GREAT LAKES FOREST
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE	GRAND COUNCIL TREATY #3
MR. R. REILLY	ONTARIO METIS & ABORIGINAL ASSOCIATION
MR. H. GRAHAM	CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN	DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC	MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI	BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY
MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON

(iii)

APPEARANCES: (Cont'd)

MR. C. BRUNETTA

NORTHWESTERN ONTARIO
TOURISM ASSOCIATION

I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>DAVID LOWELL EULER,</u>	
<u>PETER PHILLIP HYNARD,</u>	
<u>JOHN TRUMAN ALLIN,</u>	
<u>RICHARD BRUCE GREENWOOD,</u>	
<u>CAMERON D. CLARK,</u>	
<u>GORDON C. OLDFORD, Resumed</u>	14570
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I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
495	Article entitled: Silvicultural Consequences of Forest Harvesting on Peatlands by Groot.	14580

1 ---Upon commencing at 9:05 a.m.

2 THE CHAIRMAN: Good morning, ladies and
3 gentlemen. Please be seated.

4 Ms. Swenarchuk?

5 DAVID LOWELL EULER,
6 PETER PHILLIP HYNARD,
7 JOHN TRUMAN ALLIN,
8 RICHARD BRUCE GREENWOOD,
9 CAMERON D. CLARK,
10 GORDON C. OLDFORD,

11 CONTINUED CROSS-EXAMINATION BY MS. SWENARCHUK:

12 Q. Mr. Oldford, my first question is for
13 you this morning. I asked you some questions yesterday
14 about the intended application of the Code of Practice
15 and the Chairman also asked you about this. I am still
16 not clear on something.

17 Can you explain for me what is the
18 distinction between how the Ministry intends to treat
19 this Code as compared to how it treats the guidelines?
20 What made this a Code rather than guidelines?

21 MR. OLDFORD: A. Well, the Ministry sees
22 this Code as an educational tool designed and aimed
23 primarily at the front line people, the foreman, the
24 equipment operators in the field.

25 And, for that purpose, it is designed to
heighten their awareness, to raise their working
standards, there are already good standards, and that's

1 the objective.

2 Q. So then, if I understand you
3 correctly, this document is not intended to be an
4 enforceable mandatory guideline to timber management
5 planning and practice in the same way as the the moose
6 or fish guidelines? It is an educational tool, it is
7 not directive?

8 A. That is correct.

9 Q. Thank you.

10 THE CHAIRMAN: Mr. Oldford, just on that
11 same line. Is there anything in the guidelines - I am
12 asking this question because of some previous
13 testimony - is there anything in the guidelines that is
14 new and different from what is actually done, in any
15 event?

16 MR. OLDFORD: In the Code, sir?

17 THE CHAIRMAN: Sorry, in the Code, yes.

18 MR. OLDFORD: Yes. We have guidelines
19 and Codes and I find it confusing too.

20 No, not really anything new. The
21 objective, sir, is to just improve already good
22 practice and that practice, what occurs in the field,
23 will be enforced by the company and by the Ministry
24 just through their regular practice of monitoring the
25 activities of their people that are conducting the

1 work.

2 THE CHAIRMAN: Thank you.

3 MS. SWENARCHUK: Q. So if it is only
4 educational and not directive, as I understand it, what
5 you are saying is that for those companies who aren't
6 engaged in these practices at this time - assuming
7 there are some - this Code will not require them that
8 they change their practice and it will simply inform
9 them about other types of practice, but they will not
10 be required to change their practice?

11 MR. OLDFORD: A. I don't know of any
12 companies that are not following good practices today.

13 Q. Well, let's treat it as a
14 hypothetical in that case. If there are companies
15 whose practice in riparian areas is not totally in
16 accordance with the Code now, as I understand your
17 evidence, what you are saying is that there is nothing
18 in this Code that will require them to change their
19 practice?

20 A. I would like to try and address your
21 question this way: What the Code will do is raise your
22 sense of awareness and will be quicker and poor
23 practice will be identified very readily. And where
24 poor practice is discovered, that would be corrected.

25 Q. How will it be corrected?

1 A. It will be corrected through direct
2 instructions at the supervisory level in the field,
3 that's the practical way that things happen.

4 Q. Would you come back to my question
5 then. I am saying that I will treat it as a
6 hypothetical. If a company will not, of its own
7 volition, comply with the provisions of this Code, the
8 supervisors in the field will not educate their people
9 to do things differently.

10 I take it the Ministry will not be
11 enforcing this Code in the sense of demanding that
12 companies comply with it?

13 A. I would like to think that...

14 Q. Could you address your attention to a
15 hypothetical case then, please, and tell me whether the
16 Ministry will direct that company to comply with the
17 Code or not?

18 A. Yes, those companies will have to
19 comply with the Code.

20 Q. Then why not make it a guideline?

21 A. Because it is not really a set of
22 specific instructions and because we want to improve
23 the performance in the field by operators and people
24 right on the front line, and I believe that that can be
25 accomplished by setting out some principles that are

1 enunciated in the Code.

2 Q. Can't that also be done by making it
3 a guideline and going through the same educational
4 process?

5 A. I believe it can be done by using it
6 as a Code.

7 Q. Would you answer my question, please.
8 Could it not also be done by making the Code a
9 guideline and using the same educational process that
10 you now plan for the Code?

11 A. Yes, it could be done that way.

12 MR. GREENWOOD: A. Ms. Swenarchuk, may I
13 help clarify a point here. I like to think of the
14 difference between the two is, the guidelines are aimed
15 at management and, therefore, require some sort of
16 pre-planning. The Code, no matter how much of planning
17 or management that you put into it, comes down to the
18 operator on the site at the time and, therefore, to
19 make that operator subject to thinking of these types
20 of things we call it a Code of Practice.

21 And you could put all the guidelines --
22 the guidelines obviously have to be enforced the same
23 as the Code has to be enforced, and enforcement under
24 the Code will come up under the Fisheries Act, Lakes
25 and Rivers Improvement Act and the acts of legislation

1 which are currently in place which do afford a degree
2 of protection to these riparian areas.

3 In order to ensure that that takes place,
4 however, I think I mentioned yesterday that practice
5 which is referred to under the Code will be monitored
6 under the area inspections. If in fact there are
7 infractions, then those infractions become infractions
8 of existing legislation.

9 So I think the difference would come to
10 the management concept versus the practice concept and
11 the fact that the guidelines speak more to management
12 as opposed to actual practice on the site. They result
13 in a practice on the site, but they aren't aimed the
14 same way at the operator on the site.

15 Q. What you are saying is that the Code
16 of Practice establishes no new mandatory requirements
17 that aren't already there in the legislation pertaining
18 to those areas?

19 A. That's my understanding. And I think
20 this is what Mr. Oldford is aiming at when he says it's
21 educational.

22 Q. Well, yes, I quite agree that appears
23 to be what it's aimed at. And, in fact ---

24 A. As a practising forester --

25 Q. In fact, then, the enforcement under

1 this Code will be no different than the enforcement has
2 been up to now, it will be relying on the legislative
3 base?

4 A. Other than that, its awareness will
5 be heightened and it will be spoken directly in the
6 area inspections, correct.

7 Q. Thank you. Mr. Greenwood, are there
8 any sections of the Code for which non-compliance is
9 not covered by any of the legislation that you referred
10 to?

11 A. I'm afraid I don't have the Code in
12 front of me and you would literally have to almost go
13 through it piece-by-piece and my knowledge of the
14 legislation probably wouldn't even allow me do that.

15 Q. I guess we'll have to do it then.
16 Mr. Greenwood, on the question of rutting and
17 compaction, I believe your evidence is that it still
18 occurs to a limited extent?

19 A. That's correct.

20 Q. And I believe one of the sources that
21 you have included in the material is the Mackintosh and
22 Shurman article which is at pages 469 and following of
23 Volume I. Could we turn to that, please.

24 Too much paper, too many trees cut down
25 for this.

1 I think you said at page 243 of the text
2 that if compaction and rutting occurs --

3 A. Could I have the paragraph?

4 Q. Page 243, top of the page:

5 "Should compaction take place, loosening
6 of compacted soil through site
7 preparation and rapid revegetation of the
8 site can mitigate effects and hasten
9 recovery. In Ontario the yearly
10 freeze-thaw cycle is natural method of
11 recovery."

12 A. Correct.

13 Q. Okay. So when we look at Shurman and
14 Mackintosh, the first thing we notice is that the
15 Ministry contributed to the funding for that research;
16 is that not correct?

17 A. That's correct.

18 Q. And then if we look at their
19 recommendations at about page 503, I want to suggest to
20 you that they weren't quite as optimistic about the
21 general picture of compaction and rutting that the
22 Board has heard about so far in the evidence?

23 A. The recommendations on page 503
24 pertain to and appendix, the actual recommendations of
25 the study are on page 491.

1 Q. Oh. And are you considering that --
2 is it your position then that the recommendations don't
3 pertain to the study by Mackintosh and Shurman?

4 Were these recommendations not written by
5 Mackintosh and Shurman?

6 A. I'm not sure. I would have to refer
7 back to the body of the report to see how they referred
8 to the appendix. They may be, I'm just -- I'm not sure
9 at this point in time.

10 Q. Okay. Well --

11 THE CHAIRMAN: Where are the
12 recommendations on 491?

13 MR. GREENWOOD: The major recommendation
14 that I take from the study on 491 are that:

15 "The study should be viewed as a
16 preliminary problem analysis and
17 that..."

18 THE CHAIRMAN: The paragraph at the top?

19 MR. GREENWOOD: That's correct. And
20 further a study is suggested.

21 I'm sorry, I called them recommendations.
22 Those are the the conclusions of the author.

23 MS. SWENARCHUK: Well, let's just take a
24 look at the findings of the study if we could, Mr.
25 Greenwood.

1 MS. SWENARCHUK: Can I just have a
2 moment, Mr. Chairman?

3 THE CHAIRMAN: Very well.

4 MS. SWENARCHUK: Q. Perhaps you could
5 establish for me, Mr. Greenwood, whether that appendix
6 was not written by Shurman and Mackintosh?

7 MR. GREENWOOD: A. I don't know. I'm am
8 trying to find myself a reference to the appendix to
9 see how he refers to it -- or the authors refer to it,
10 but I don't have that at my fingertips.

11 Q. If it wasn't, presumably it's a
12 totally different source and we don't have a citation
13 for a different source attached to that appendix; do
14 we?

15 A. No. It deals with a slightly
16 different subject, it deals with modelling with respect
17 to soils and compaction, and that's why I'm not sure
18 whether the authors did it or received it from some
19 other source. It does pertain directly to our Clay
20 Belt. I just don't know. I can't find that reference
21 to the appendix.

22 I would be willing during the break to
23 take a look through it and see if I could find that
24 reference, if that would help.

25 Q. All right. Well, We will come back

1 to that article after the break then.

2 I think also with respect to rutting and
3 compaction, Mr. Greenwood, one of your sources was the
4 Groot article on Silvicultural Consequences of Forest
5 Harvesting of Peatlands; was it not?

6 A. Yes, it was.

7 MS. SWENARCHUK: (handed)

8 THE CHAIRMAN: Exhibit 495.

9 ---EXHIBIT NO. 495: Article entitled: Silvicultural
10 Consequences of Forest Harvesting
on Peatlands by Groot.

11 MS. SWENARCHUK: Q. Now, Mr. Greenwood,
12 you would agree with me that this is a study of site
13 damage through compaction and rutting on peatland
14 sites?

15 MR. GREENWOOD: A. Yes, with particular
16 reference to silvicultural consequences.

17 Q. That's right. And I don't know if we
18 have had this discussion before, can you describe for
19 the Board what a peatland site is?

20 A. A peatland site. A peatland site is
21 technically within soils context an organic site, an
22 organic soil site and that is determined at a point --
23 the point at which the organic layer or that forest
24 floor layer that Mr. Armson referred to becomes 40
25 centimetres in depth or more.

1 Q. Are many of these sites wet?

2 A. Many of these sites are wet, yes. In
3 fact, it is usually the moisture that has caused the
4 build up of that organic layer.

5 Q. And would you agree with me that the
6 findings of the authors in this study were that there
7 was a considerable degree of rutting on the site
8 studied?

9 A. I couldn't generalize in that way.
10 He was examining different harvesting methods using
11 different tools and found differences between the
12 methods.

13 Q. Right, okay. Let's look at the
14 bottom of page 5, last paragraph:

15 "From the one-way analysis of
16 variance..."

17 Bottom of page 5:

18 "...both the frequency and cover of deep
19 ruts were significantly influenced by the
20 harvest method. Deep ruts were more
21 severe in the summer conventional plots
22 with an average of 14 per cent of the
23 surface area covered by deep ruts and 48
24 per cent of four-metre quadrates having
25 at least 5 per cent deep rut coverage.

1 High flotation in summer and harvesting
2 in winter resulted in 3 and 1 per cent
3 deep cover respectively."

4 So as you and Mr. Oldford have been
5 saying, high flotation or winter harvest does reduce
6 the rutting.

7 Do you agree with me that 14 per cent
8 coverage is pretty severe rutting?

9 A. That would very much depend on how
10 you defined a deep rut. 14 per cent of the area is not
11 particularly severe unless the incidence of rutting is
12 severe within that 14 per cent.

13 In terms of renewal of the site, which is
14 what this author is aiming at, 14 per cent of the site,
15 in my opinion, wouldn't prevent you from renewing the
16 site. If that 14 per cent was severely rutted, then I
17 would think that 14 per cent of the site could become
18 significant. If some of that 14 per cent could still
19 be renewed, then it would become less significant.

20 Q. So an average of 14 per cent of the
21 surface area covered by deep ruts, in your view, is not
22 a particular severe effect?

23 A. Covered by deep ruts. Again, it
24 depends on how you define. He defines deep ruts as 15
25 centimetres or more. 15 centimetres, 7 inches, is not

1 particularly deep. In a lot of these sites that would
2 not create ponding. If in fact it didn't create
3 ponding, then I don't think it would affect renewal
4 and, therefore, again you have got to define what you
5 are calling a deep rut.

6 He had it going above the 15 centimetres
7 and certainly at the extent of his range of deep rut,
8 if it was all that severe, 14 per cent could become
9 significant.

10 Q. Okay. Can we look at page 8, please.

11 "The most severe damage occurred with the
12 summer conventional method... "

13 A. Which paragraph, please?

14 Q. The second last paragraph from the
15 bottom: "The most severe damage..."

16 A. Mm-hmm.

17 Q. "...occurred with the summer
18 conventional method in the Alness
19 earth-poor operational group with 20 per
20 cent of the ground surface occupied by
21 deep ruts and 65 per cent of four metre
22 square quadrates occupied by at least 5
23 per cent deep ruts."

24 And, again, are you saying that that 20
25 per cent occupied by deep ruts is not necessarily a

1 serious event?

2 A. I would think that in terms of
3 renewal it is not something we would want. I think
4 that's the bottom line.

5 Q. Exactly.

6 A. Rutting is not something we are after
7 out there, so the amount that you can reduce it or
8 prevent it, is what we are attempting to do.

9 Q. Right. And on the next page:

10 "Percentage of ground covered by deep
11 ruts."

12 And here he has created the table with
13 reference to operational groups from the FEC; has he
14 not?

15 A. That's correct.

16 Q. And, again, would you agree that the
17 most serious rutting - and it; s 19.9 per cent - comes
18 from summer harvest with narrow tires on the
19 operational group 12?

20 A. I'm just not too sure what the number
21 in brackets is. 19.1, as I understand it, is the
22 percentage. 19.9 --

23 Q. Yes, yes. Excuse me, 19.1, right.

24 A. I'm sorry, I was concentrating on
25 that and I missed the final question.

1 Q. I'm just noting for the Board how he
2 has recorded these --

3 A. That's the figure, yes. 19.1 is the
4 figure.

5 Q. Right. Okay. Then if we look at
6 page 17, the effects of site damage on silvicultural
7 practice?

8 A. Yes.

9 Q. He has noted a number of negative
10 effects which I would like to review:

11 "Site damage has many obvious negative
12 effects on silvicultural practice.

13 Advanced growth that may have been
14 present in the forest before cutting is
15 largely destroyed by the severe
16 disturbance that is associated with site
17 damage."

18 Do you agree with that?

19 A. Correct.

20 Q. "A large proportion of the surface
21 area of the damaged site is covered by
22 water-filled ruts, slash and moderately
23 to well-decomposed organic matter (black
24 muck) none of which is a good seedbed for
25 black spruce establishment."

1 Do you agree with that?

2 A. Within the summer harvest on narrow
3 tires, yes.

4 Q. "Consequently seed tree and direct
5 seeding methods are unlikely to result in
6 successful regeneration of a damaged
7 peatland."

8 A. Correct.

9 Q. "The vegetation that has been
10 observed to invade damaged peatland
11 sedges, grasses, alder and cattail)
12 would also likely hinder the
13 establishment of black spruce from seed."

14 A. Correct.

15 Q. "Planting damaged sites is also
16 problematic from a logistical point of
17 view. Access to such sites To deliver
18 seedlings or planting personnel is
19 difficult and may cause additional site
20 damage."

21 Do you agree with that?

22 A. Yes.

23 Q. "And the act of planting itself may
24 be even more difficult because of the
25 treacherous footing in a deeply rutted

1 area. Suitable and accessible planting
2 spots may be poorly distributed, in fact
3 it may lead to a poor distribution
4 pattern of planted trees."

5 A. Correct.

6 Q. Agreed.

7 A. Mm-hmm.

8 Q. Then:

9 "If the logistical problems can be
10 overcome and seedlings are planted, it is
11 likely that frost heaving will be a
12 threat because much of the plantable area
13 on a damaged peatland will be black
14 muck."

15 A. Correct.

16 Q. "And competing vegetation may also
17 become a problem even although large
18 stock may overcome this."

19 A. That's correct.

20 Q. "The aforementioned problems all deal
21 with the difficulty of re-establishing
22 trees on a damaged site. A further
23 question which is not addressed by this
24 study is whether there is any permanent
25 or transient reduction in the basic

1 productivity of the site as a result of
2 site damage. For example, foresters
3 believe that machine ruts, may block
4 surface drainage and water and cause
5 ponding."

6 A. That question is there, correct.

7 Q. Now, I take it -- this is a 1987
8 paper; isn't it?

9 A. This is a 1987 paper.

10 Q. For cutting dated from '82 to '84;
11 as I recall?

12 A. 83-84, yes.

13 Q. Okay. So they consider that the
14 question of site productivity from damage is still open
15 and presumably requires research. Do you agree that
16 that question is still open?

17 A. The productivity following severe
18 disturbance from narrow tires in summer, yes, from
19 severe rutting.

20 Q. Okay. Now, on page 19 at the top
21 there is another comment that I think is important. We
22 have heard a lot of evidence that attempts are
23 constantly made to minimize site damage and here they
24 said that:

25 Minimizing site damage was not a main

1 objective of any of harvesting methods
2 studied and, therefore, it seems likely
3 that selection of equipment and operating
4 techniques with the objective of reducing
5 site damage would result in further
6 gains."

7 So presumably there is still some
8 improvement to be made here. Do you agree with that?

9 A. Not necessarily. I would suggest
10 that this study which reflected work done in 83-84 was
11 correct at that time, however, that there has been
12 quite a dramatic change in practices since 83-84 even.

13 And, in fact, the HARO method which we
14 have spoken about which incorporates all of the
15 recommendations including changing harvest pattern, not
16 harvesting these summer areas with narrow tires, have
17 been incorporated in that.

18 Well, HARO, as I said yesterday, is an
19 accounting system but the practices which lead to HARO
20 and, in fact, have been incorporated in the
21 silvicultural groundrules within the Clay Belt area.

22 So I would agree with this author. He is
23 reflecting what was happening at that time and it was a
24 reflection also of the Ministry's concern that some of
25 these changes took place.

1 Q. So you think there's been that
2 dramatic a change between 82, 83, 84 when the cutting
3 was done and the present time?

4 A. Yes, I do and for the two reasons.
5 At that point in time the FEC -- I should back up. Two
6 things are necessary in order to prevent rutting or
7 minimizing it on these areas.

8 First of all, you have to be able to
9 identify the sites which are susceptible. The forest
10 eco-system classification, which was out at that time,
11 was still a new piece of knowledge and there were a
12 number of training courses taking place. That
13 information was being disseminated throughout the Clay
14 Belt area and it was at about this time that it was
15 starting to really be used.

16 That was the first thing. So people were
17 getting used to FEC and starting to work with it and
18 starting to identify the sites.

19 The other thing was the advent of wide
20 tires which were here at this time, but I'm just not
21 sure how widely were being used.

22 So the combination of the two resulted in
23 changing silvicultural groundrules which incorporated
24 the tool of them, the use of equipment -- modified
25 equipment and the ability to identify those sites and

1 that was the dramatic change.

2 Q. And you're saying that -- at this
3 point are you saying that there is very little or
4 virtually no summer harvesting of peatland sites with
5 conventional tires?

6 A. I haven't done a survey to state
7 that. In fact, I would think that the process of
8 learning and switching over to equipment is probably
9 still taking place.

10 I can think of possibilities of small
11 operators who don't have the twenty-five, \$30,000--

12 Q. Right.

13 A. --that it takes to switch their
14 equipment over and, therefore, they are probably still
15 in that process.

16 I'm thinking of areas where the funds
17 weren't available to possibly do the FEC survey and,
18 therefore, there are still sites that are not being
19 nailed down as those which need to have this modified
20 equipment put on to it.

21 However, the movement is definitely in
22 that direction and the movement has been rather
23 dramatic in that the major companies operating that
24 area have changed.

25 Q. And which companies are those?

1 A. The two that come to mind are Spruce
2 Falls and Abitibi. Spruce Falls of Kapuskasing and
3 Abitibi out of Cochrane -- Iroquois Falls and they
4 would cover a large proportion of the Clay Belt area
5 and probably account for the large majority of the
6 harvesting in that area.

7 Q. And you're saying they no longer
8 harvest peatland sites in the summer time with
9 conventional tires?

10 A. Again, I don't have personal
11 knowledge. There are silvicultural groundrules which
12 would reflect that they don't, at least their
13 intentions are not to do that.

14 Q. All right.

15 A. And the report from our field
16 foresters is that the problem of rutting has largely
17 been overcome except for isolated instances.

18 Q. Thank you.

19 MR. MARTEL: Can you tell me if there is
20 anything going on to try to accumulate from your
21 staff -- based on this study and the changes you have
22 mentioned, is there an effort being made to put
23 together the data which would indicate numerically how
24 significant the change has been; in other words, so the
25 people can identify the improvements?

1 MR. GREENWOOD: I'm not aware of any
2 study that's attempted to do that, Mr. Martel. I think
3 that the bottom line in all of this is free to grow
4 surveys. Are the areas being renewed successfully, is
5 survival high and are they growing?

6 MR. MARTEL: That will take about seven
7 years in the interim while we're waiting to determine
8 that in black spruce. Isn't it seven to ten years for
9 a free to grow unit?

10 MR. GREENWOOD: Approximately, that's
11 correct. Survival information could give you some
12 interim measure of that, if it's carried out.

13 And also. When it comes to any of these
14 condition surveys, I think we talked the other day
15 about budgets or lack of budgets. When I was speaking
16 to that, I was thinking in the reference that you just
17 made and that's quantitative data. Surveys are carried
18 out regularly by the foresters and technicians in a
19 qualitative sense. Every time they are in their
20 vehicles or in an aircraft, any time the technician is
21 in the field, they are doing that type of survey.

22 It doesn't provide the data as you
23 suggest, but it certainly gives them an indication of
24 how well those plantations are responding, and it's
25 that type of information that has been fed back.

1 MR. MARTEL: Thank you.

2 MS. SWENARCHUK: Q. Mr. Greenwood, would
3 you turn to page 51 in paragraph 26, please.

4 MR. GREENWOOD: A. Paragraph 26?

5 Q. Right, page 51. And this has to do
6 with changing water yields after harvest.

7 A. Correct.

8 Q. Now, would you agree that moisture
9 stress, either excess or deficit, plays a major role in
10 determining the success of artificial regeneration
11 programs?

12 A. It can, yes.

13 Q. And would you agree that there has
14 been a general lack of appreciation of the resistance
15 to water uptake in newly planted trees which suffer
16 high mortality if exposed as they often are to moisture
17 deficits before they're able to develop a new fine root
18 system?

19 A. There was a lot to handle there,
20 would you mind re-reading that, please.

21 Q. I'm reading from Kimmins.

22 A. Have you got the page number?

23 Q. Page 284-85.

24 A. 284, which paragraph?

25 Q. The last paragraph on the page. This

1 is the new edition.

2 A. I'm sorry?

3 Q. It's the new edition.

4 A. It's the only one.

5 Q. '87.

6 A. '87.

7 A. I couldn't agree with that in the
8 general sense, no. There has been an awful lot of work
9 done on moisture relationships in, particularly,
10 planting stock; those moisture relationships dealing
11 with the deficits and the drying out that takes place
12 following lifting in the nursery, the type of treatment
13 that's required prior to putting them into the ground.
14 There has been studies on, the ones that come to mind
15 are, on soaking of the trees things like that.

16 So there certainly hasn't been evidence,
17 I don't think, a lack of appreciation of the water
18 relationships in newly planted trees.

19 Q. Mr. Greenwood, are you aware of --
20 when you refer to studies being done, are you talking
21 about studies that were done in the field after the
22 trees were planted -- after the seedlings were planted?

23 A. If you're are doing something like a
24 soaking study to determine whether it affects survival
25 and growth, that is the only way you can do it.

1 Q. Could you give me the sources for
2 those, please?

3 A. I don't have them here.

4 Q. Not off the top of your head, but at
5 some later time.

6 A. I will attempt to find something on
7 it, yes.

8 Q. Well, to find something on it, I
9 assume you're aware of these studies or you wouldn't be
10 referring to them.

11 A. I'm aware that studies on soaking
12 have been done, yes.

13 Q. But you're not aware at this
14 moment --

15 A. How they are published, how many,
16 when they were done.

17 Q. Right.

18 A. Things like that, yes

19 Q. Right. Were they done in Ontario?

20 A. To the best of my knowledge, yes.

21 Q. All right. So -- and are you saying
22 that if these studies have been done, then across the
23 Ministry and the tree planters and everyone out there
24 there is a wide knowledge of this problem?

25 I take it you're concluding that because

1 some studies have been done Kimmins is wrong in saying
2 that there's a lack of appreciation of these problems?

3 A. Well, I'm not too sure exactly what
4 the author means by lack of appreciation. Certainly
5 when I was in the field dealing with planting, the
6 appreciation for those trees to be able to need
7 moisture in order to put on, as he puts it: "...before
8 they develop their new fine root system", was always in
9 the foreminds of our people.

10 I mean, it was almost a farming offence
11 for a planter to carry too many trees in their hands
12 prior to planting them, they had to stay in their bags.
13 The whole reason for that was because the roots dry
14 out, and that was well explained to them.

15 In terms of planting micro-site, the
16 reason that micro-site is so important in many cases,
17 and one of the things that is really looked at is
18 mineral soil exposure, and in describing these to the
19 planters, this is a key point that is explained to
20 them, the reason, duff dries out.

21 If you plant it in duff -- if you plant a
22 jack pine in duff, the duff dries out, the tree is
23 going to die. That's a soil/moisture relationship. So
24 putting the roots in the mineral soil is important.

25 So I'm not too sure if Dr. Kimmins is

1 referring to this in a scientific way, that we need to
2 understand how the tree absorbs water and how that
3 absorption relates to the production of fine roots in a
4 scientific sense, or whether he's referring to it in a
5 practical sense, because certainly in a practical sense
6 there was great appreciation for this.

7 Q. In your experience?

8 A. In my experience.

9 Q. Okay, fair enough. Do you agree with
10 the next sentence in the paragraph on the next page:

11 "The alterations in the hydrological
12 cycle following logging can play a major
13 role in determining the success or
14 failure of regeneration programs."

15 A. Oh, certainly.

16 Q. Okay. Now, looking at paragraph 29
17 of the same page...

18 MR. FREIDIN: What page?

19 MS. SWENARCHUK: 51.

20 Q. You have said that:

21 "Currently, no Ontario documentation of
22 reduced growth due to compaction exists."

23 Do you mean by that to say that there has
24 been a study of the subject which indicates no reduced
25 growth, or that there have been no studies on the

1 subject in Ontario?

2 MR. GREENWOOD: A. There have been no
3 studies that have documented reduced growth -- sorry,
4 there have been no studies, period.

5 Q. All right. Now, paragraph 31 with
6 regard to micro-climate:

7 "Harvesting changes in micro-climate in
8 a relationship with the degree of
9 vegetation removed, changes can include
10 those both critical for successful
11 re-establishment of the forest and those
12 detrimental to regeneration."

13 Now, do you in any way relate
14 micro-climate changes to sizes of clearcut; for
15 example, would you agree that on an open continuous
16 large area clearcut the micro-climate may be affected
17 for a long period of time. Do you agree with that?

18 A. There is two questions there. The
19 first was whether I thought that it related to size of
20 the opening, and the second one was...?

21 Q. Whether the change -- whether
22 micro-climate could be affected for a long period of
23 time.

24 A. Oh, I think, yes. In an open
25 clearcut, regardless of size, the micro-climate would

1 be affected -- well, define long period of time. It
2 would certainly be affected for ten years.

3 Q. All right. And do you agree that
4 even the commencement of revegetation does not end the
5 changes in micro-climate that have happened?

6 A. No, I couldn't agree with that. The
7 most severe changes would be those directly following
8 clearcut and the very next day I would say they would
9 start to be ameliorated and moving back towards what
10 they originally were.

11 Q. But that could take up to ten years,
12 you say?

13 A. The movement, yes. The dramatic
14 change would obviously be that which is related to
15 revegetation. If you have that area revegetated, and
16 I'm thinking now of a site, for instance, where poplar
17 is suckering, poplar can sucker to a metre high in one
18 growing season.

19 The micro-site on that site has already
20 been dramatically changed from that directly following
21 clearcut and is moving towards what it was as a mature
22 stand, but certainly the effects are still there.

23 Q. You've answered my question. All
24 right, thank you.

25 Can we turn to paragraph 42 just briefly,

1 Dr. Euler. The paragraph reads that:

2 "Occasionally rare, threatened or
3 endangered plants and their surroundings
4 may have to be given special
5 consideration in timber management."

6 DR. EULER: A. Yes.

7 Q. Can you tell us why it's the position
8 of the Ministry that these plants only get occasional
9 special consideration, why aren't they considered in
10 all timber management planning?

11 A. Well, perhaps it's just the wording
12 of the way that recommendation is and what occasional
13 modifies. The idea was that, occasional, just because
14 rare, threatened and endangered plants by their very
15 definition don't occur everywhere, so wherever they
16 occur, they are given special consideration.

17 Q. Well, wouldn't you have to have the
18 area cut examined by someone competent to identify
19 these plants in the first place?

20 A. That's very helpful.

21 Q. And is that the normal practice?

22 A. No, not all of the area is looked at
23 by a qualified person in every case.

24 Q. All right. And when these plants
25 have been identified for special treatment, is that

1 recorded in the management plans?

2 A. Yes, I believe so and we might want
3 to check with one of the foresters who have more
4 familiarity with those plans than I do.

5 MR. GREENWOOD: A. I didn't quite get
6 the whole question.

7 Q. When a rare, threatened or endangered
8 plant has been identified in the field for protection,
9 is that indicated in the forest management plan?

10 MR. GREENWOOD: A. Oh, yes, it would
11 become an area of concern.

12 Q. And are you aware of areas of concern
13 for this purpose, Mr. Greenwood?

14 A. I think the table that was presented
15 the other day showed some area of concern.

16 Q. In one area, which is--

17 A. That's correct.

18 Q. --which is what, the Lanark
19 Management Unit of Carlton Place?

20 A. I can't remember the particular
21 management unit, but it was down south.

22 Q. Are you aware of any in any
23 other areas in your experience--

24 A. No, I'm not.

25 Q. --having to do with plants. Mr.

1 Oldford, are you?

2 MR. OLDFORD: A. No, I'm not.

3 DR. EULER: A. I'm aware of one other
4 incident, Ms. Swenarchuk, near Thunder Bay where a rare
5 orchid has been protected in the course of timber
6 management planning.

7 Q. And do you know approximately when
8 that happened?

9 A. My understanding is that that
10 happened in the early 1980s. To be specific, I would
11 have to get that detail to be certain.

12 Q. I'm satisfied with that. Thank you

13 MR. HYNARD: A. Maybe I could add a
14 point on there too, Ms. Swenarchuk.

15 If there was a rare, threatened or
16 endangered plant known, it would appear on the values
17 map in the timber management plan and that map would be
18 updated periodically or whenever new values were
19 discovered.

20 So that, should it surface at any point,
21 it would appear on that map and that record would be
22 kept. Should operations be planned in an area adjacent
23 to that location it would become an area of concern.

24 On my own unit I have none because we
25 have discovered none and I ask my staff, particularly

1 about ginseng, whether they had ever encountered
2 ginseng in their tree marking - it occurs in hardwood
3 stands - and one of our technicians I knew gathered
4 ginseng and sold it years and years ago, and so I asked
5 him those locations.

6 Q. Gathered a rare plant for sale?

7 A. Oh yes, 20, 30 years ago. Oh, it was
8 quite valuable, it wasn't recognized as -- this was
9 before he was even an MNR staff member.

10 Q. Of course.

11 A. So I asked him where those locations
12 were and they were all on private land. And we tried
13 to find them on Crown to identify them, none surfaced.

14 There is always the danger though in
15 placing it on a values map, with regard to ginseng,
16 that then people would go over the values map and would
17 say: Ah-hah, here's where to go and get it.

18 But that is the reason on my own unit
19 none appeared, we haven't discovered any, but we have
20 looked.

21 MR. GREENWOOD: A. And I can think of a
22 case where we knew the plants were there, but because
23 it wasn't rare in this particular instance because it
24 was a very unique habitat type and the unique habitat
25 type was cliffs, which there is no logging taking place

1 on. So there is often knowledge of rare plants but by
2 the nature of their location and the nature of their
3 rare habitat, no harvesting takes place.

4 Q. But you agree that it's not normal
5 practice for someone qualified in identification of
6 rare, threatened or endangered plants to examine an
7 area plant for harvest for the identification of the
8 plants beforehand?

9 A. I'm not even sure how such a person
10 could do an inventory like that.

11 Q. Well, if you could just answer the
12 question: It's not the practice?

13 A. No, it's not.

14 Q. All right. Mr. Hynard, could we turn
15 to page 79 and 80 of your paper, please. Now, starting
16 on the last line on page 79 you read that:

17 "Since balsam fir is favored by partial
18 cutting and natural regeneration methods,
19 forest managers often prescribe
20 clearcutting and artificial regeneration
21 to increase the component of black
22 spruce."

23 Right?

24 MR. HYNARD: A. Yes.

25 Q. Now, first of all, do you - just to

1 clarify what you mean by that sentence - do you mean
2 that the regenerated forest will have a greater
3 component of black spruce than the cut forest, or
4 merely that artificial regen is used to increase the
5 amount of black spruce regeneration relative to what
6 would regenerate without artificial regeneration?

7 In other words, is it to increase the
8 proportion of black spruce overall, or is it just to
9 increase black spruce relative to balsam fir?

10 A. Just give me a moment to read the
11 sentence again, please.

12 Q. Sure.

13 A. The intent behind that Section 7:
14 Problems and Pests, was to state that susceptibility to
15 problems and pests is a factor in selecting the species
16 to be grown, and that is not true only of balsam fir.

17 In this case, harvest of a stand --
18 partial cutting of a stand and harvest by a partial
19 cutting technique where balsam fir advanced
20 reproduction is present in the stand and reliance upon
21 that balsam fir will mean that the cut-over will be
22 heavily dominated by balsam fir in the next rotation.

23 The alternative of clearcutting that
24 stand and site preparing it and planting with black
25 spruce will increase the component of black spruce in

1 that new stand over the first option.

2 Q. Relative to what would have
3 regenerated without that artificial regeneration?

4 A. That's right. You are not going to
5 eliminate balsam fire, it's not I don't believe
6 possible to eliminate balsam fir in that next stand.

7 Q. Now, you will recall that Forests for
8 Tomorrow asked an interrogatory question about this.

9 MS. SWENARCHUK: And it's found in the
10 package, Mr. Chairman, it's Question No. 11.

11 MS. BLASTORAH: Is that Exhibit 491?

12 MS. SWENARCHUK: Yes, it is. Do you have
13 it, Mr. Chairman?

14 THE CHAIRMAN: Yes.

15 MS. SWENARCHUK: Good.

16 Q. And I just want to review
17 specifically what the wording of the question was here.
18 We asked for studies supporting the view that these
19 methods have succeeded in increasing the component of
20 black spruce and four sources were listed.

21 Did you compose this response, Mr.
22 Hynard?

23 MR. HYNARD: A. No, I didn't.

24 Q. You adopt the response; do you?

25 A. Excuse me just a moment, let me check

1 who did prepare that response. Before I do adopt it,
2 Ms. Swenarchuk, I would like to discuss that response
3 with the party that prepared it and I'm not sure who
4 did.

5 Q. Right.

6 A. And to go over those studies that
7 were indicated here.

8 Q. Well, I would like to go over the
9 studies too, and maybe you can decide after that
10 whether you adopt the response, but some other
11 questions will flow from the impacts of these studies.

12 I take it then you haven't had an
13 opportunity to read them?

14 A. You're right, yes. If you would give
15 me the opportunity over lunch break -- are we having a
16 lunch break today?

17 THE CHAIRMAN: It depends I suppose on
18 how Ms. Swenarchuk is doing with her examination.

19 MS. SWENARCHUK: How is that supposed to
20 motivate me, Mr. Chairman?

21 THE CHAIRMAN: Well, it's not but we
22 would like sort of an indication perhaps later this
23 morning where you are in the course of your examination
24 and see how many hours we can put in today, reasonably,
25 before we break. If we break around --

1 MS. SWENARCHUK: Well, I'm certainly not
2 going to finish today, Mr. Chairman.

3 THE CHAIRMAN: No, we understand that,
4 but if we break say around one o'clock, we could break
5 for the day and maybe not break for lunch, rather than
6 breaking for lunch and coming back for an hour or
7 something like that.

8 MS. SWENARCHUK: Mm-hmm. I just have
9 to -- I'm a little surprised at this so I have to think
10 about this a bit.

11 THE CHAIRMAN: Would you have enough time
12 if we took the morning break now to...

13 MS. SWENARCHUK: In fairness to Mr.
14 Hynard, if he has not seen these papers before, some of
15 them are fairly -- I think one of them is 30 pages
16 long, so...

17 MR. HYNARD: If you won't finish your
18 cross-examination today, then I will certainly have
19 those studies -- I will do my best to have those
20 studies and go over them before you commence again next
21 week.

22 MS. SWENARCHUK: Well, I have them. It
23 would be a matter of simply copying the longest one
24 which I haven't copied. I guess we can certainly
25 provide them to you.

1 MR. HYNARD: Okay. Can I have about five
2 minutes?

3 THE CHAIRMAN: Well, perhaps maybe we
4 could take the morning break at this time. Would that
5 be in order for you at this time?

6 MS. SWENARCHUK: Yes.

7 THE CHAIRMAN: All right.

8 MS. BLASTORAH: I'm just wondering, is
9 this going to be the only break then, Mr. Chairman, so
10 we ---

11 THE CHAIRMAN: No, we'll probably have
12 one more break before we end of the day.

13 MS. BLASTORAH: No lunch break?

14 THE CHAIRMAN: If we can go through
15 without having a lunch break, and then breaking around
16 one o'clock and then people can attend to their
17 arrangements to get back and have lunch, et cetera, I
18 think that would probably be preferable.

19 MS. BLASTORAH: I only raise it so we can
20 make arrangements for lunch.

21 MS. SWENARCHUK: For all of us?

22 MS. BLASTORAH: We're ordering in.

23 MR. FREIDIN: That is part of Exhibit
24 1000.

25 THE CHAIRMAN: All right. We will break

1 now for 20 minutes.

2 ---Recess taken at 10:05 a.m.

3 ---Upon resuming at 10:35 a.m.

4 THE CHAIRMAN: Thank you. Be seated,
5 please.

6 MS. SWENARCHUK: Q. Mr. Hynard, could
7 you please turn to page 83 of Volume I, please.

8 MR. HYNARD: A. Page 83?

9 Q. Right. Now, the last sentence of
10 this paragraph -- of this page refers to black spruce
11 blowdown:

12 "Similarly very early trials of selection
13 and shelterwood methods in black spruce
14 in the north were found to incur
15 excessive blowdown losses and since have
16 been curtailed."

17 And I think you testified as well that
18 this type of cutting leads to excessive blowdown loss
19 with black spruce?

20 A. Yes.

21 Q. Now, do you have personal experience
22 with this problem?

23 A. No. In fact, when I wrote those
24 words I recall very distinctly being in the Kapuskasing
25 area, Vic Sleep who was - I don't remember his title at

1 the present time - he took us out to company areas in
2 which those tests had been made and showed us the
3 blowdown when I was a student. I recall that very
4 distinctly.

5 Q. Now, do you agree that black spruce
6 blowdown can be overestimated if the forester doesn't
7 know and take account of natural blowdown in the
8 stands?

9 A. Well, if your question means, doesn't
10 take into account that some trees would blow down
11 anyway in a control plot, yes I would agree with that.

12 Q. Right. And if we can do a little
13 arithmetic for the moment. You indicated in describing
14 the various silvicultural methods -- I believe this is
15 at page 113, the middle paragraph of the page:

16 "Strip shelterwood cuts differ from strip
17 clearcuts only in the strip width; strip
18 cuts two chains in width or wider are
19 classed as clearcuts strip. Cut layout
20 is done on the ground by compass and
21 chain before the cut."

22 A. Yes.

23 Q. So, just to get a sense of the
24 dimensions here, strip shelterwood cuts are cuts less
25 than two chains in width which is about 43 metres;

1 right? 66 foot per chain here?

2 A. Yes, times two divided by -- yes,
3 that's about right.

4 Q. Okay, thank you. I'm proud of that
5 one. But you agree that as modified clearcuts, black
6 spruce can be cut in strips of 40 to 80 metres. That
7 is the last paragraph on page 47. In any event, it's
8 just--

9 A. Oh, yes.

10 Q. --just over that chain length, it
11 becomes a strip clearcut?

12 A. That's right, that's right.

13 Q. That's right.

14 A. That's how we classify them, based on
15 that width.

16 Q. So there is really some overlap
17 there?

18 A. Well, I suppose--

19 Q. Or the amount is --

20 A. --if it was right on the two-chain
21 mark, yes, it could go either way. We have to draw the
22 line somewhere in classifying these areas on our own
23 records and we have drawn the line at two chains.

24 Q. Okay. And so modified cutting which
25 really overlaps strip shelterwood is suitable for black

1 spruce; is it not?

2 A. Well, modified strip clearcutting is
3 a modified form of clearcutting. Yes, it's suitable
4 for black spruce, yes.

5 Q. Okay. Now, do you agree that large
6 area clearcuts can also create problems of windthrow?

7 A. In what way? If all the trees are
8 removed there is not much left to blow down.

9 Q. Okay. Well, let's look at Kimmins.
10 Do you generally accept Kimmins as a credible
11 authority.

12 A. I'm not familiar with Kimmins.

13 Q. Would you look at page 218, please.

14 THE CHAIRMAN: Can we have the full title
15 of the book and the edition.

16 MS. SWENARCHUK: It's Forest Ecology by
17 J. P. Kimmins.

18 THE CHAIRMAN: Is that with a K?

19 MS. SWENARCHUK: Yes, K-i-m-m-i-n-s.

20 THE CHAIRMAN: Thank you.

21 MS. SWENARCHUK: He is from the
22 University of British Columbia. It's MacMillan, 1987.

23 THE CHAIRMAN: Thank you.

24 MS. SWENARCHUK: And I believe Mr. Armson
25 accepted him as a recognized authority on forest

1 ecology.

2 Q. So, if we look at page 218, Mr.
3 Hynard, the last paragraph on the page, Kimmins says
4 that:

5 "Windblow is far more common in
6 stands adjacent to clearcut areas than in
7 stands well away from clearcuts."

8 Do you agree with that?

9 A. Yes, the relationship there is that
10 the blowdown occurs adjacent to the cut area.

11 Q. Right.

12 A. That is where it's most prevalent
13 because that is where trees are now exposed to more
14 wind than they previously were. So, yes, I agree with
15 that statement, that a stand that is well away from the
16 edge of the cut would receive less blowdown.

17 Q. Okay. And can we turn over to page
18 220 and, beginning with the second paragraph here:

19 "The effect of wind on the water balance
20 of plants can determine the success or
21 failure of planting. The moisture stress
22 caused by wind can be fatal to a young
23 seedling even on a moist site because of
24 the resistance to water uptake that is
25 caused by the lack of fine roots, root

1 hairs and/or mycorrhizal associations."

2 That is m-y-c-o-r-r-h-y-z-a-l.

3 A. Yes.

4 Q. You agree with that?

5 A. I recall Mr. Armson spelling it.

6 Q. I spelled it, anyway.

7 A. Yes, if you are asking about -- well,

8 I can see that a relationship there might be possible

9 under some circumstances in some parts of the world.

10 I'm not aware of that effect being an important or

11 significant factor to forestry in Ontario.

12 Q. Does anyone else want to comment on
13 that, I guess?

14 A. The statement here is that:

15 "The moisture stress caused by wind can
16 be fatal to a young seedling..."

17 Q. Isn't that rather obvious. Mr.
18 Greenwood?

19 MR. GREENWOOD: Yes. I think if we are
20 talking straight ecological relationships, if you dry
21 the seedling out it's going to die, yes.

22 Q. And are you saying that this is never
23 a problem in the area of the undertaking? Presumably
24 it is, in some areas at some times; is it not?

25 A. Not in a normal year. In a drought

1 year where there is already low moisture in the soil,
2 certainly anything that can increase the
3 evapotranspiration of that tree is certainly going to
4 put the tree into stress. The actual mortality from it
5 is extremely low and it would be related to--

6 Q. Has it been measured?

7 Q. Has it been measured? Well, it would
8 be measured in survival of plantations, yes.

9 Q. This particular factor would be
10 isolated and has been isolated for measurement?

11 A. Again, if you are looking for a
12 specific piece of research, no, but when a forester has
13 high mortality in their plantations, the first thing
14 they attempt to do is determine why and stress from
15 drought shows very nicely in the needles, they go a
16 specific colour and it's fairly easy to determine that
17 it is drought that's doing it.

18 And I say drought because I would put the
19 two together, low soil moisture and increased wind.
20 You can increase the wind all you want, if there is
21 lots of moisture in the soil, you are not going to kill
22 the tree.

23 Q. Well, let's look at the next line.

24 THE CHAIRMAN: Ms. Swenarchuk, with great
25 respect, how do you prevent something like that? How

1 do you prevent the wind and how do you prevent --

2

3 MS. SWENARCHUK: Well, Kimmins has some
4 suggestions on that, actually, which has to do with the
5 layout and configuration of clearcuts, which is what
6 I'm coming to.

7 THE CHAIRMAN: But in situations where it
8 is not essentially a problem, except in isolated areas
9 and except for isolated occurrences how, in management,
10 are you really going to prevent things like drought
11 which occur from time to time, things like wind which
12 may occur from time to time?

13 I mean, it is either a significant
14 problem which maybe requires some attention or it is
15 not.

16 Would not - just a moment - would not the
17 more relevant type of questioning in this area be
18 questions addressed to the panel as to whether, in
19 their view, this is a significant problem and, if it
20 is, how would they attempt to address it, or if it is
21 not a significant problem.

22 I mean, we are always going to get
23 various problems across the area of this undertaking
24 occurring in isolated cases and I think it is virtually
25 impossible to prevent every single type of potential

1 problem that might occur in any reasonable fashion.

2 MS. SWENARCHUK: Well, Mr. Chairman, you
3 have heard the evidence of some witnesses that it is a
4 very isolated problem; there may be evidence from other
5 witnesses that it is not.

6 THE CHAIRMAN: Well, that's fine. But, I
7 mean, that really I think is the gist of it, as opposed
8 to examining a problem in detail with a panel that has
9 indicated that they don't consider it to be a
10 significant problem.

11 MS. SWENARCHUK: Well, if I can just have
12 the next sentence.

13 THE CHAIRMAN: Okay.

14 MR. FREIDIN: What page are we looking
15 at?

16 MS. SWENARCHUK: 220, the second
17 paragraph. All right. And I will put the question to
18 Mr. Hynard because this comes out of his discussion on
19 blowdown.

20 Q. Kimmins says:

21 "Reducing the size of clearcuts and
22 planting in the lea of stumps,
23 microtopographic features, or logging
24 debris, all of which reduce the exposure
25 of seedlings to wind can help to reduce

1 dessication and reduce seedling
2 mortality."

3 Do you agree with that? Let's start with
4 the first one, reducing the size of clearcuts. Would
5 you agree with that?

6 MR. HYNARD: A. Well, I have noticed
7 that natural seedlings that are given some protection
8 in the form of stumps and other debris sometimes show a
9 higher survival, or at least you see them there more
10 often. I always attributed that to dessication from
11 sun rather than from wind.

12 I don't know if reducing the size of
13 clearcutting and planting in the lea of stumps and
14 these other factors would in fact raise your survival
15 rate. I think if you had a survival rate problem you
16 would want to isolate out all the factors that
17 contribute towards mortality in planted trees.

18 We try to do that. We have found that
19 the really significant factors are stock quality, stock
20 handling, transportation, storing the trees at the
21 site, handling the trees while they are being planted
22 and selecting the micro-site for planning and tree
23 planting quality. All of those have a tremendous
24 effect and we pay great attention to them.

25 As to directing the planters to plant in

1 the lea of a stump because the effects of wind on
2 dessicating that seedling, to me is a theoretical
3 factor and while I can see the theoretical value, I'm
4 not sure I can see a practical value there.

5 Q. So you disagree with the statement?

6 A. I think my answer indicated how I
7 accept the statement.

8 MRS. KOVEN: Excuse me, Mr. Hynard. You
9 said that you look carefully at the micro-sites on
10 which the seedlings are planted. Do you take into
11 account planting near a stump or do you just measure
12 every metre and put it in?

13 MR. HYNARD: No. Spacing is one of the
14 factors. Of course, you are looking to place a tree as
15 close to the correct spacing as possible, but the
16 planter is given instructions on what is an acceptable
17 micro-site. Planting in the duff for example, as Mr.
18 Greenwood pointed out, if there is a patch of duff
19 there and patch of mineral soil that has been exposed
20 by site preparation, then the planter is given
21 instructions on which is the superior micro-site and
22 how to direct his tree there. That is the kind of
23 instruction they get.

24 I have never given planters instructions
25 with regard to planting in the lea of a stump.

1 MS. SWENARCHUK: Q. Can you direct your
2 attention to the first part of that sentence which was
3 reducing size of clearcuts. What is your view with
4 regard to possible wind damage to seedlings on large
5 versus small area clearcuts?

6 MR. HYNARD: A. Well, I don't have a
7 view on that. I have never thought of the size of
8 clearcuts as a determining or limiting factor on
9 planted tree survival.

10 Ms. Swenarchuk, I am used to southern
11 Ontario and we plant -- in southern Ontario, it's
12 pretty big fields planted up. I mean, those old farm
13 fields stretch for miles and miles, there are thousands
14 of hectares. We have not noticed that survival is
15 lower in the middle of that field than it is at the
16 edge next to a woodlot.

17 When you are planting up a farm field,
18 the middle of the field is no worse than the edge.

19 Q. So you're saying that -- surely a
20 clearcut though in the boreal forest is a different
21 question than planting a field in southern Ontario?

22 A. Well, not -- in this regard they are
23 pre-exposed to the wind in the middle of that field,
24 there is nothing, there is no stumps, there is nothing
25 to protect them.

1 Q. So you disagree with the first part
2 of the sentence as well?

3 A. I think I did explain how I accepted
4 that sentence. I can see that there might be a
5 theoretical value, but I don't necessarily agree there
6 is a practical value in doing so.

7 Q. Okay. You don't agree with that.

8 MR. GREENWOOD: A. Ms. Swenarchuk, I can
9 think of one case where it wouldn't be practical and
10 that is the wind blows from four different directions
11 on our sites.

12 In British Columbia where maybe the winds
13 blow from one direction, that may be also a practical
14 tool, but in the middle of our clearcuts, the wind can
15 blow from any direction.

16 I don't know which side of the stump I
17 would pick to plant it on.

18 Q. So you wouldn't have any suggestions
19 for shaping or configuring clearcuts in order to
20 minimize wind damage?

21 A. Well, I was going to mention, you
22 said size of clearcut and I think we've heard more than
23 once that size of clearcut in some circumstances isn't
24 as important as configuration.

25 If in fact I was to alter the

1 configuration of a clearcut, I could do so in such a
2 way to reduce wind within it and still have a very
3 large clearcut just by creating the distance to edge.

4 But I would also like to repeat that wind
5 can't be separated from soil moisture. If there is no
6 soil moisture stress, wind won't particularly cause any
7 dessication of trees. If there is no ample soil
8 moisture, than wind contributes to that.

9 And, therefore, I would draw it back to a
10 situation such as drought. You also might consider a
11 soil that is dry soil to begin with, but on those sites
12 we would put species on it which were adapted to those
13 conditions and, therefore, could adapt to wind. And --

14 Q. What species would those be?

15 A. Jack pine on a dry site.

16 Q. So you are saying that in your
17 opinion there is no need either to concern yourself
18 with wind direction in configuring clearcuts in
19 northern Ontario?

20 A. Not from my personal experience, no.

21 Q. Fair enough.

22 MR. HYNARD: A. Just -- your earlier
23 question, Ms. Swenarchuk, with regard to the size of
24 the clearcut and the effects of windthrow at the edges
25 of cut. I think one factor I should have mentioned to

1 complete the answer is the ratio of edge to size of the
2 area being cut is a factor in the incidence of
3 blowdown.

4 I did not want to leave the impression
5 that large clearcuts resulted in equal blowdown losses
6 to shall clearcuts. The edge to the area cut ratio is
7 a big factor. There are other factors, but that's a
8 big factor, and that ratio is higher in the small cuts.

9 Q. Right. Agreed. Can we look at page
10 91 of Volume I.

11 Now, in the last paragraph of this page
12 you have indicated that:

13 "Clearcuts are employed in the harvest of
14 mature black spruce, jack pine, red pine,
15 white pine or boreal mixed wood stand on
16 a deep competition-prone mineral soil
17 where regeneration of the desired species
18 by natural means is not normally
19 possible. In this case regeneration
20 is by artificial means, usually intensive
21 site preparation and planting."

22 So you are indicating that for red pine
23 and white pine on this type of soil, clearcut and plant
24 is the best technique for regeneration; is that right?

25 MR. HYNARD: A. Well, the statement is

1 that clearcuts are employed in those situations. In
2 the case of that red and white pine, we are talking
3 about a deep competition-prone mineral soil and where
4 regeneration of a desired species by natural means is
5 not normally possible.

6 Q. Is a deep competition-prone mineral
7 soil a rich site?

8 A. Yes.

9 Q. Is it normally a moist site?

10 A. It would probably be a fresh, very
11 fresh site. It might be moderately moist.

12 Q. So you would clearcut only if natural
13 regeneration was not possible on the site?

14 A. Well, the statement is that it's
15 employed in those situations. There may be other
16 options also.

17 Q. What would the other options be?

18 A. Are you referring to red pine or
19 white pine?

20 Q. White pine.

21 A. Another option would be shelterwood,
22 however, because of the nature of the site you would --
23 it would be necessary to carry out competition control,
24 site preparation, tree planting and probably tending --
25 well, almost certainly tending as well.

1 And normally shelterwood is used as a
2 natural regeneration method in which the residual stand
3 is retained as a source of seed and cover to aid in the
4 regeneration -- the natural regeneration of the stand.
5 To use shelterwood in conjunction with artificial
6 methods is -- well, it has lost some of that purpose;
7 certainly lost the purpose of seed source.

8 If you felt there was a value in the
9 cover either for reasons of -- well, let's say for
10 reasons of weevil control protection.

11 Q. Mm-hmm.

12 A. Then you may opt to do so.

13 MRS. KOVEN: Mr. Hynard, haven't we heard
14 in the case of white pine there really isn't much
15 potential for natural regeneration at all, no matter
16 how it's harvested?

17 MR. HYNARD: Sort of. It's a difficult
18 species to regenerate by natural means and it is
19 possible though to do so on certain site types, those
20 site types which are relatively free of competition.

21 MR. MARTEL: Wouldn't You wouldn't have
22 good soil necessarily then, would you?

23 MR. HYNARD: Well, you wouldn't have good
24 soil for the competitors, but it may be quite good
25 enough soil for the white pine.

1 MR. MARTEL: It wouldn't be a rich
2 soil -- what you would term a rich soil; would it?

3 MR. HYNARD: That's right. It wouldn't
4 be fertile in the sense that it may have a high
5 nutrient status or it may have a good moisture regime.
6 The white pine is not a really strong demander of
7 moisture and nutrient. It will do relatively well on
8 what looks like a relatively poor site.

9 And its competitors are not like that,
10 they do poorly on that site type and, therefore, white
11 pine has a natural competitive advantage on that kind
12 of site.

13 MS. SWENARCHUK: Q. What is the base of
14 your conclusion in that paragraph that natural
15 regeneration of black spruce on deep mineral soil is
16 not possible or, as you've said, is not normally
17 possible?

18 A. Well, I base that statement on the
19 opinions of other foresters that I have met over the
20 years who stated so and in what they described to me,
21 the reason that that is not possible, remember that
22 natural regeneration of black spruce can occur by two
23 methods; one is from advanced growth and the second is
24 by natural seeding.

25 Advanced growth of black spruce, or let's

1 say the layerings does not occur on that site type. It
2 doesn't occur on that site type because the branches
3 are not low and in contact with the ground. Black
4 spruce form and growth patterns are different on that
5 site type, so layerings are not present and the
6 potential for layering is not there on that site type.

7 With regard to natural seeding, black
8 spruce likes a moist seedbed, it's a slow starter and a
9 poor competitor in those early years and on those rich
10 fertile sites it will be badly beaten by all the
11 competition. Even trees which did find a suitable
12 seedbed, would be badly beaten by competition.

13 Those are the reasons that I understand,
14 having met and talked to spruce foresters over the
15 years.

16 Q. Do you agree that intensive site
17 preparation and planting on these sites can encourage
18 even more competition?

19 A. Site preparation properly conducted
20 for that site type will certainly give the black spruce
21 a competitive advantage, the conditions it needs to
22 make that fast start.

23 If your question was: Can some site
24 preparation techniques in fact favour and do more
25 suckering, the answer to that is, yes, it can but, of

1 course, you have got to take that into account in
2 selecting your technique.

3 Q. And in that case you would be
4 required probably to use herbicides to restrict the
5 competition?

6 A. I wouldn't put it so definitively.
7 The use of herbicide is another factor altogether.

8 If you're looking at -- and the type of
9 site preparation, the type of micro-site for your
10 planted tree and the effects of competition, the tree
11 that you're growing and the site that you're on, will
12 determine the type of site preparation that you are
13 going to do.

14 If all you are looking for is a plantable
15 spot, all you need is a little patch, a patch scarifier
16 to just give you a place to put the tree and you're not
17 going to induce further suckering with a technique like
18 that.

19 But you may not -- you certainly would
20 not reduce competition with a technique like that. So
21 if you are on a very competition-prone site, you will
22 probably have to do something else as well to control
23 the competition.

24 Q. And that will probably be herbicide
25 use?

1 A. Probably, it could be.

2 Q. Now, at page 105, Mr. Hynard, you
3 have indicated in the middle paragraph that:

4 "Strip clearcuts require large stands in
5 a mature condition to be practicable.

6 It is not possible to affect a harvest by
7 strip cutting on rugged, broken terrain
8 or in small stands."

9 Why couldn't you use them on rugged,
10 broken terrain or in small stands? Basically we are
11 talking here about smaller clearcuts. Why is that a
12 problem?

13 A. No, basically here we're talking
14 about a rigid laid out pattern of clearcutting.

15 Q. Fine.

16 A. We are talking about a strip clearcut
17 with straight boundaries and square corners and, in
18 order to do that, you have got to have a stand that's
19 large enough to accommodate all those various strips,
20 you have got to have it on terrain that will allow the
21 harvesting to occur down those strips, the skidding to
22 occur down those strips.

23 If you are dealing with a small stand on
24 the top of a hill, you're better to cut the stand
25 rather than to try and install this rigid pattern of

1 cutting. It would be -- it is simply practical
2 reasons.

3 Q. So the restriction here has to do
4 with the particular layout of a strip clearcut?

5 A. That's right.

6 Q. You presumably wouldn't have the same
7 opinion of a small area clearcut configured in
8 accordance with the terrain?

9 A. No, that's right. And you are able
10 to carry out a small clearcut under those conditions,
11 but you can't lay it out with straight lines.

12 Q. Now, in the last paragraph of the
13 page you refer to the Ketcheson Study, Economic Study
14 of 1979, which concluded that with regard to strip
15 clearcuts:

16 "...the reconstruction of roads is the
17 greatest source of extra cost and that
18 these extra costs increase with an
19 increase in the leave period."

20 Now, we had some discussion earlier
21 about - if I can use the word again - subsidies to
22 industry for road construction under the FMA. Have
23 there been any studies that have looked at whether the
24 savings on regeneration costs coming from strip
25 clearcutting offset, to any significant degree, the

1 increased cost of road construction?

2 A. There may be. I'm not aware of such
3 studies, but those factors are something to consider
4 all right.

5 There is -- we heard yesterday or the day
6 before yesterday that there are extra costs involved in
7 cutting in this fashion, there is the cost of the cut
8 layout, there is the cost of the roads and the
9 re-opening or maintaining the roads, there are the
10 opportunity costs of the blowdown but there are savings
11 as well, and those savings are in the form of nursery
12 stock and tree planting.

13 Q. All right. And in respect of the
14 establishment of the FMA system, the economics of this
15 question have changed considerably since Ketcheson's
16 1979 study because that's basically pre-FMA; is that
17 right?

18 A. I don't know that their conclusion
19 would be any different. You are still going to have to
20 go back and do that return cut, you are going to have
21 to spend extra dollars, somebody is going to spend
22 extra dollars on extra road maintenance or road repairs
23 in order to that return cut.

24 Q. Right.

25 A. I don't believe that invalidates that

1 conclusion.

2 Q. I am simply saying, that the entire
3 context in which we look at those economic conditions
4 now have changed given the economics of the FMAs; in
5 other words, offsetting increased road costs by savings
6 in artificial regeneration?

7 A. I am always in favour of saving a
8 dollar and Ketcheson concluded that you would have to
9 spend more dollars in order to cut in that fashion.
10 Just because someone is paying for the road, doesn't
11 mean that we should just forget it and spend more
12 dollars, it doesn't matter. It does matter.

13 Q. I think I will just leave that one.
14 Mr. Oldford, if you will turn to page 159, please.

15 Now, first of all, presumably not all
16 forwarders are equipped with tracks or high flotation
17 tires; is that right?

18 MR. OLDFORD: A. Correct.

19 Q. And you have indicated at the middle
20 of the page that:

21 "Because these machines are designed to
22 carry larger numbers of trees at one
23 time, the amount of the traffic over a
24 specific area can be reduced thus
25 limiting potential site damage."

1 A. Yes.

2 Q. Isn't there a possibility that given
3 the larger number of trees that they can carry and the
4 resulting greater weight of the machine carrying them,
5 that that has a potential for site damage more than a
6 lighter machine?

7 A. That would be very site dependent.

8 Q. Yes, certainly.

9 A. If I could mention, when we reviewed
10 the slides that I showed, I showed a slide of a large
11 Koehring feller-forwarder with a full load of wood
12 crossing a jack pine sand flat and those soils in that
13 case are very high-bearing capacity and there would be
14 no problem whatsoever.

15 Q. Right. Surely all the effects we are
16 talking about are highly site specific?

17 A. I agree.

18 Q. And that would include this one. And
19 on other types of sites the increased weight could have
20 a potential for more damage?

21 A. They could if the machines were used
22 there.

23 Q. Now, is it true that many of the
24 operators of these machines are sub-contractors to
25 major companies?

1 A. Yes, in some cases.

2 Q. Now, is that a very prevalent
3 practice or not very prevalent?

4 A. It is a mixed practice. I wouldn't
5 be able to say how many were company owned and operated
6 versus contractor operated.

7 Q. And do most of the operators of these
8 machines work at piecework rates; that is, they are
9 paid according to their production rather than an
10 hourly rate?

11 A. That depends, Ms. Swenarchuk, but
12 some are paid that way, yes.

13 Q. And would you agree that those that
14 are working at piecework, like other piecework workers,
15 have an interest in maximizing the cut that they take?

16 A. Yes.

17 Q. Now, we've talked about an education
18 process to increase the practice of operators on the
19 site. How are those instructions given now?

20 A. What instructions, particularly?

21 Q. Well, are there regular training
22 programs for operators of these machines in site
23 protection?

24 A. Companies have training programs for
25 their staff, yes.

1 Q. Specifically oriented towards site
2 protection?

3 A. If the sites that they were operating
4 on were subject to damage, I would say yes. I know
5 when I was working with a company, with Abitibi-Price
6 in Newfoundland and when we were operating on sites
7 that there was a risk that the way that they were
8 operating might affect our future renewal options, we
9 left very specific and explicit instructions with our
10 operators.

11 Q. And would you agree that practice
12 varies across the area of the undertaking?

13 A. There may be -- that would be a fair
14 statement, the degree of that instruction would vary.

15 Q. Now, you've indicated earlier that
16 MNR does not either recommend or require the use of
17 particular types of equipment in particular site
18 conditions at this time.

19 The silvicultural guides do not include
20 that sort of recommendation; do they, with regard to
21 types of equipment?

22 A. Well,, my reading of your question at
23 that time was a little different. I think you asked me
24 if there were harvesting guidelines, and I read that to
25 refer to harvesting guidelines specifically.

1 But in the, say, the black spruce
2 silvicultural guide, there is a section in there called
3 Harvesting Considerations and that's available for
4 foresters to review to gain guidance when operating on
5 certain sites.

6 Now, also in the groundrules of the FMA,
7 there is reference to using different types of
8 equipment and operating in different seasons of the
9 year on different sites. So to that extent, yes, there
10 is instruction given and, given the fact that the
11 Ministry approves the timber management plans, there is
12 a control there.

13 Q. So you're saying that the Ministry
14 does control then the use of this equipment on
15 different sites by the companies?

16 A. In that regard, yes.

17 Q. In other words -- I will put the
18 question another way: How mandatory is the use of the
19 equipment as set out in the silvicultural guide, for
20 example? It is just a suggestion; isn't it?

21 A. It's more than a suggestion. If the
22 range of pieces of equipment that could be used in an
23 environmentally sound manner on that site is very
24 narrow, then you have got to stick to that type of
25 equipment or else operate that site in the frozen

1 period.

2 If I was a practising forester - and I
3 have been out of the field for some time now - and I
4 went out and visited one of my black spruce lowlands on
5 a unit and saw a skidder causing a lot of damage, I
6 would take the foreman of that operation aside and say:
7 Look, guy, I know you've got to keep people employed
8 and I know that we can't put your operation right down,
9 but probably just a little farther down the road
10 there's another stand that is allocated, let's move
11 along.

12 In most cases I wouldn't have to do that
13 because an operator that has a machine that's
14 unproductive as a result of difficulties in operating
15 with the site, would make that decision himself just
16 through good practice and he would probably call me up
17 and say: Breakup has occurred a little earlier, I
18 would like to move to a site that's higher and dryer, a
19 site that's more suited to the weather conditions that
20 I am facing. That's my experience.

21 Q. What would be your options if you
22 made that suggestion to a company and the company did
23 not comply with it; what could you do to require
24 compliance?

25 A. I believe I would get compliance if I

1 asked that of a company.

2 Q. Well, would you agree with me that in
3 the present structure of Ministry regulation of the
4 industry, we can't require that compliance?

5 A. I think I can require that compliance
6 without any difficulty. I know of no case where I
7 needed to make a change and I couldn't make it. On the
8 other hand, say, an FMA company where the company has
9 the primary responsibility for--

10 Q. Excuse me.

11 A. --for renewing the site --

12 Q. Could we just go back to your first
13 statement. You think you could require the compliance.
14 I take it by that you mean, if you asked it they, will
15 do what you ask?

16 A. Yes.

17 Q. Okay. Right. Would you please
18 direct your mind to the situation of a company not
19 doing what you ask, and then my question is: What
20 authority, what power do you have within the Ministry
21 to require that compliance?

22 MR. HYNARD: A. Maybe I could...

23 Q. Excuse me, Mr. Hynard. Well, my
24 question is for Mr. Oldford, please.

25 MR. OLDFORD: A. And I am thinking very

1 hard on that question and I don't want to give you an
2 answer to suggest something that I could not do and
3 where Mr. Hynard is a practising field forester right
4 now, I believe he is in a better position to answer
5 that question.

6 Q. Well, we will give Mr. Hynard that
7 opportunity, but you are the acting Director of Forest
8 Resources and surely compliance with the standards of
9 your Ministry must be an important factor in your mind.

10 I simply put it to you that there is
11 nothing in the current regulatory structure that would
12 allow you to require that compliance. Isn't that
13 correct?

14 A. I would have to think on that one and
15 come back to you, really. I would have to take a look
16 at some documents that I could research and see.

17 I believe we have lots of options with
18 companies in the area of future business that they have
19 to do with government in the area of licensing, et
20 cetera. I have no doubt that that compliance could be
21 achieved, no doubt whatsoever.

22 Q. So the compliance would be along the
23 lines of: If you don't do it this way, your next
24 licence is in danger; is that it?

25 A. Well, the compliance that I would

1 look for of a company is: Ontario is a place you like
2 to do business in, we've got -- and we look to good
3 operating standards and we expect you to behave that
4 way in this province.

5 Q. Now, if you're looking at an FMA
6 holder with an enforceable legal agreement, what are
7 your options there?

8 A. The options there are clear. Just
9 like in the other case that I mentioned, if an
10 agreement holder isn't keeping up to the
11 responsibilities of that agreement, there is a review
12 period at the end of five years.

13 THE CHAIRMAN: Mr. Oldford, or any of the
14 panel, is there any procedure for revocation of
15 licences?

16 I am not asking whether it has occurred
17 before, but is there a procedure whereby the Ministry
18 has the power, even at the Regional Director or
19 Minister's level, to revoke a licence?

20 MR. OLDFORD: There are clauses in the
21 Crown Timber Act, Mr. Chairman, but I would have to
22 refer to those.

23 THE CHAIRMAN: And if there is power of
24 revocation, would that not be the ultimate sanction if
25 the government felt that conditions that they wished to

1 have apply are not being complied with?

2 MR. GREENWOOD: There is a far easier way
3 to do it. There is a clause within the Crown Timber
4 Act that allows conditions to be placed on harvest
5 operations, and Mr. Oldford hasn't been in the field
6 for a while, but these are called cutting approvals --
7 or approval to commence cutting operations.

8 If the condition was not on the approval
9 on the site described to harvest it in the winter
10 condition or to harvest it with wide tires for
11 protection of that site, then it would be difficult to
12 shut that operation down.

13 But you can be assured that if the
14 company did not apply with a request to shut that
15 operation down, the rest of their cutting approvals
16 would have it in bold type and it would be monitored
17 very strictly.

18 So this is why, you know, I agree with
19 Mr. Oldford, the company would comply because there are
20 other things that we can do and it is more important to
21 preserve that cooperation than to have us absolutely
22 hammering points in future operations that they have to
23 deal with us on.

24 So it would be under the cutting approval
25 that such a condition would be applied.

1 MS. SWENARCHUK: Mr. Freidin, could I
2 have a sample of one of these cutting approvals. You
3 could block out the name. I would like an actual one,
4 block out the name and you can consider the information
5 confidential.

6 MR. FREIDIN: Sure, no problem.

7 MR. HYNARD: But that is exactly how it
8 is done that if there were a condition -- and I place
9 conditions on season of operation on operations in my
10 unit and the cutting approval is not valid outside of
11 that period, therefore, they can't operate without the
12 authority, without that cutting approval.

13 MS. SWENARCHUK: Q. Okay. Now, this has
14 to do with non-FMA areas; right?

15 MR. HYNARD: A. Well, in my unit I don't
16 have any FMAs.

17 Q. Mr. Greenwood, does this apply to
18 FMAs as well?

19 MR. GREENWOOD: A. Yes, it does.

20 Q. And on FMAs, cutting approvals like
21 this are required for each harvest operation?

22 A. Under the Crown Timber Act cutting
23 approvals are required. I mean, FMAs simply replaces
24 the licence which gives the company authority in that
25 area. The cutting approval must be granted prior to

1 any operations taking place of the harvest nature on
2 Crown lands.

3 MR. HYNARD: A. So any conditions that
4 were important on that harvest that were placed in
5 there in the management plan as essential silvicultural
6 considerations would appear also on the cutting
7 approval and any company that operated without
8 following those conditions on that cutting approval
9 would be in contravention.

10 MR. MARTEL: Mr. Greenwood said time.
11 Does it apply to equipment -- does it also - I think
12 you said that, I don't want to put words in your mouth,
13 Mr. Greenwood - I think you said, and you referred to a
14 time period, you had to do it at a certain time.

15 Would it also include equipment; in other
16 words, would it be specific to equipment as well?

17 MR. GREENWOOD: If I could just get the
18 Crown Timber Act I would read you the clause that such
19 a condition would be placed on.

20 MR. FREIDIN: I was looking for mine so I
21 could do that, Mr. Chairman. I just don't have it
22 here.

23 MS. BLASTORAH: I do have one upstairs.
24 It will take just a few minutes to get it.

25 MR. OLDFORD: Well, Mr. Chairman, when I

1 was practising unit forester - and my memory isn't that
2 good going back to '82 - '73 or '74, I can remember
3 then, as far back as then, having clauses in cutting
4 approvals in the Chapleau District dealing with some of
5 the items that we have identified in the Code of
6 Practice.

7 MR. FREIDIN: Mr. Chairman, there is a
8 copy of a cutting approval in Panel 16, so perhaps you
9 could take a look at that one.

10 THE CHAIRMAN: In the witness statement
11 for 16?

12 MR. FREIDIN: In the witness statement
13 for 16. And just while I am on my feet, perhaps we
14 should just have the witnesses indicate how long these
15 cutting approvals are required?

16 MR. OLDFORD: Those cutting approvals are
17 required for every operation every year. They are
18 issued in advance of the start of operations.

19 MR. HYNARD: I wouldn't want to leave the
20 impression that it is a problem. I have never had
21 companies defying conditions on a cutting approval.

22 MR. OLDFORD: If I could add one point,
23 Mr. Chairman. My experience with this, in working in
24 the Ministry as unit forester, as forest management
25 supervisor and as regional forester before moving to

1 the main office organization, has been when a problem
2 is identified in the field you deal with the front line
3 supervision, the company's front line supervision in
4 the field.

5 Very seldom is there a need to even go
6 much farther than that but, if there is a problem, you
7 arrange to have your superior call the woods manager or
8 the general manager of that company and correction is
9 very immediate.

10 MR. FREIDIN: What about Section 32.

11 MR. GREENWOOD: The section which deals
12 with cutting approval is Section 14 subsection (1):

13 "No licensee shall commence cutting
14 Operations in any year until the Minister
15 has approved in writing the area in which
16 the cutting operations are to be carried
17 on in that year."

18 And this is the clause, it's a yearly
19 approval and on that clause there are a number of
20 sections and the one of the sections is the conditions
21 under which harvesting will take place and it would be
22 in that section that we would put in the conditions
23 which must apply.

24 MR. MARTEL: What is the section number
25 again, Mr. Greenwood, please?

1 MR. GREENWOOD: It is Section 14,
2 subsection (1). And in terms of revoking licences,
3 Section 32:

4 "Where a licensee contravenes any
5 provisions of Sections 26 to 30 which
6 deal with forest management, or any order
7 of the Minister made thereunder, the
8 Lieutenant Governor in Council may
9 (a) suspend the operation of the licence
10 in whole or in part for such a period as
11 he determines; or,
12 (b) cancel the licence in whole or in
13 part."

14 MS. SWENARCHUK: Q. But you can't cancel
15 an FMA; can you?

16 MR. GREENWOOD: A. I can't answer that
17 question. There is another section on FMAs and I don't
18 know whether that clause is repeated or not.

19 Q. You can review it five years later
20 but you can't summarily cancel it as you can a licence?

21 A. Certainly the Evergreen clause which
22 I think was described earlier, about it not being
23 renewed, I think what you are referring to is true.

24 Q. The five-year agreement.

25 A. But whether we have the right to

1 cancel it or not, or the Minister, I can't answer that
2 question.

3 Q. Fine.

4 A. Without reviewing this again.

5 Q. Fine.

6 MR. HYNARD: A. It is stated on -- I
7 have one FMA in front of me here, it is paragraph 33.

8 THE CHAIRMAN: Could you identify that,
9 Mr. Hynard, which FMA you are referring to?

10 MR. HYNARD: It's FMA agreement No.
11 502600. The paragraph is 33(b)(ii). It is a section
12 dealing with Evergreen in which the Minister reviews
13 the performance of the agreement holder at the end of
14 each five-year period with respect to his -- with
15 respect to his obligations under the agreement. His
16 obligations include writing management plans and
17 following those management plans, plans that are
18 approved by the Minister and contain all of those
19 silvicultural groundrules. Those are just one of the
20 obligations.

21 If during that review the Minister
22 concludes that the obligations have not been met, he
23 may give him a period of time in which to make good the
24 default and that subsection referred to reads:

25 "Wherein, in the Minister's opinion, such

1 lastmentioned obligations have not been
2 performed within the specified period of
3 time, The minister, on written notice to
4 the company, may terminate this
5 agreement."

6 MS. SWENARCHUK: Q. Now, in practice, is
7 that review not done at the five-year point?

8 MR. HYNARD: A. That's correct.

9 Q. So we are talking, as I say, about
10 the five-year reviews?

11 A. That is what I am talking about--

12 Q. And --

13 A. --in this specific case, yes.

14 Q. Right. And you are not aware whether
15 all the FMAs include the same term?

16 A. Yes, they all do.

17 Q. Right. So...

18 MRS. KOVEN: Excuse me. Did Mr.
19 Greenwood say that FMA holders also require cutting
20 approvals annually?

21 MR. GREENWOOD: Yes, I did.

22 MRS. KOVEN: So an FMA holder could be
23 denied a cutting approval?

24 MR. GREENWOOD: Yes, he certainly could.

25 MR. OLDFORD: Also within the FMA

1 agreement under clause 43 there is another -- and some
2 of the clauses change, Mr. Hynard, so the numbers
3 change.

4 MS. SWENARCHUK: Yes.

5 MR. OLDFORD: Some of the agreements are
6 newer.

7 MS. SWENARCHUK: Q. Mr. Hynard, what was
8 the date of the agreement you were reading, which year?

9 MR. HYNARD: A. 13th of June, 1985.

10 Q. Mr. Oldford?

11 MR. OLDFORD: A. Under clause 43 there
12 is also a statement that:

13 "The Minister may, on notice to the
14 company, terminate this agreement under
15 (a) here the company fails under this
16 agreement after negotiations with the
17 Minister to enter into an agreement with
18 respect to groundrules;

19 (b) where a management plan or annual
20 work schedule or any of them is not
21 finalized under this agreement in virtue
22 of any default on the part of the
23 company;

24 (c) where the company fails in its
25 obligations under paragraphs 9, 10(1) or

1 15, or any of them or; where, in any
2 event, within the meaning of the
3 paragraph 37(1) has occurred and is
4 continuing, in the opinion of the
5 Minister, of such nature that any
6 material obligation contained in this
7 agreement or any of its management
8 documents will likely remain impossible
9 to perform, and as a result will
10 frustrate this agreement."

11 Q. And which agreement are you reading
12 from?

13 A. This particular FMA agreement is
14 agreement No. 503100 between the Minister of Natural
15 Resources and McKenzie Forest Products Inc., dated the
16 23rd of July, 1987.

17 MS. SWENARCHUK: Mr. Chairman, that
18 raises a question which perhaps I could discuss with
19 Mr. Freidin.

20 Undoubtedly the FMA structure is going to
21 continue to come up through the next panels, certainly
22 with Panel 11, and I think it would be helpful if we
23 all had a current agreement to work from, current in
24 the sense of one that reflects the types of --

25 THE CHAIRMAN: Mr. Freidin, is the

1 example in Panel 16's witness statement a current one?

2 MR. FREIDIN: I think so.

3 MS. SWENARCHUK: What year was it
4 negotiated?

5 MR. FREIDIN: I have to check. As you
6 know, Panel 16 is where we intend to deal with
7 enforcement and I think that is the area we are getting
8 into and that is why we left that FMA discussion in 16.

9 MR. CASSIDY: Mr. Chairman, I believe
10 there may have been one entered by Mr. Freidin in one
11 of the earlier panels. I am checking now to see if
12 that has been done, but I believe it was in part to a
13 response by MNR to NAN interrogatory and I believe that
14 was in Panel 9, and I am checking now.

15 So I don't know whether it is
16 worthwhile --

17 THE CHAIRMAN: Mr. Freidin, are the
18 members of this panel going to be present for Panel
19 16's evidence, or are they different panel members?

20 MR. FREIDIN: Wait a minute. At the
21 moment, none of them.

22 THE CHAIRMAN: So do you want to put some
23 of these questions, Ms. Swenarchuk, to this particular
24 panel, or are you content to wait for the enforcement
25 side which is 16?

1 MS. SWENARCHUK: It doesn't necessarily
2 have to be to this panel, although I think Mr. Oldford,
3 given his position, his opinions are important.

4 I would simply point out that I am sure
5 the same questions will arise -- will be raised in
6 Panel 11 not only enforcement regarding FMAs but the
7 regeneration elements of the FMA system, and that is
8 why...

9 THE CHAIRMAN: Well, there may be some
10 overlap when you are dealing with what conditions
11 should be imposed and how they are going to be...

12 MS. SWENARCHUK: So I just think it would
13 be useful to know if this is the most current -- if the
14 one in 16 is the most current terminology being
15 negotiated, I am quite content to refer to that in
16 Panel 11.

17 If not, I would like a more recent one so
18 I am just waiting to hear what the answer is.

19 MR. FREIDIN: I have no objection to her
20 exploring with this panel certain aspects of the FMA, I
21 mean they overlap.

22 I mean, you have got Mr. Oldford, as you
23 have said, and Mr. Hynard has been involved in that FMA
24 program. So to the extent the witnesses deal with her
25 concerns now, then I think that is fine. We will just

1 have to play it by ear.

2 THE CHAIRMAN: Okay. I think what she
3 wants right now, Mr. Freidin, is to find out whether
4 the example set out in Panel 16 utilizes the most
5 recent terminology with respect to the revocation or
6 cancellation or imposition of conditions.

7 MR. FREIDIN: If we are having another
8 break I can check all this out and let Ms. Swenarchuk
9 know after the break.

10 THE CHAIRMAN: Well, we are planning to
11 maybe have another break around twelve o'clock, so
12 perhaps you could check it out at that time.

13 MS. SWENARCHUK: Q. If you can just turn
14 briefly to the FMA audits, Mr. Oldford, the five-year
15 reviews that we spoke of.

16 As I understand it, those reviews are
17 done by Ministry people who are not administering the
18 FMA areas being examined; is that right? You bring in
19 outside people to do the audit or to do the review?

20 MR. OLDFORD: A. Yes, that's correct.

21 Q. And...

22 THE CHAIRMAN: Sorry, Ms. Swenarchuk, I
23 missed that last question. Could you just repeat that
24 last question.

25 MS. SWENARCHUK: I am just establishing

1 with him that the five-year reviews of the FMAs are
2 done by Ministry people who come from outside the area
3 of the FMA in question.

4 THE CHAIRMAN: And your answer, Mr.
5 Oldford, was...?

6 MR. OLDFORD: Yes, they are from outside
7 of the area that is directly involved with that
8 particular FMA, Mr. Chairman, but when the review is
9 ongoing, it involves the company people and the
10 Ministry people in the local area.

11 MR. MARTEL: Hasn't that had a cast of
12 character change? The first one was done by, if I
13 recall, some retired people from the Ministry and from
14 the university.

15 MR. OLDFORD: You are quite correct, sir.

16 MR. HYNARD: That's correct. I believe
17 that up until 1986 all of the reviews were performed by
18 Ministry staff and there were three members: There was
19 always a senior forester, a regional forester for
20 example; a senior biologist, a regional biologist for
21 example; and a senior MNR staff member from another
22 service.

23 In 1987 I believe -- yes, in 1987 for the
24 first time the Ministry engaged outside help to carry
25 out those five-year reviews and in those two years '87

1 and '88, I am not sure of the cast of characters.

2 I remember '87 there was a former senior
3 company man Garn Bell from Spruce Falls, there was a
4 former senior MNR staff member, former regional
5 director from the north central region Mel Baxter, and
6 there was a Lakehead University biology professor,
7 Harold Cummings engaged to carry out those fifth year
8 reviews. And I think --

9 MR. MARTEL: Was Herridge involved. Mr.
10 Herridge was involved, was he not, at one time?

11 MR. HYNARD: Now that I am not certain.

12 MR. MARTEL: I thought I recall reading
13 that, from the head office -- formerly head office. I
14 thought --

15 MR. HYNARD: It doesn't ring a bell with
16 me.

17 MR. MARTEL: Mr. Carey is shaking his
18 head, so I guess...

19 MS. SWENARCHUK: Q. Now, when those
20 five-year reviews are done, to what extent do the
21 reviewers look at the impact of harvesting in that area
22 on the environment and the impact -- well, harvest in
23 all its facets including logging practices, Mr.
24 Oldford?

25 MR. OLDFORD: A. The reviewers look at

1 all activities on that forest management agreement and
2 they report on those activities in the review.

3 Q. Yes. I don't recall reference to
4 questions of environmental impacts being mentioned at
5 all in the reviews that I have looked at.

6 MR. HYNARD: A. Ms. Swenarchuk, those
7 review committees look specifically at the agreement
8 holder's performance with regard to his obligations
9 under the agreement.

10 Q. Right.

11 A. His obligations are essentially to
12 write management plans and follow them, to prepare --
13 to come to agreement with the local MNR on a set of
14 groundrules for each five-year period, to carry out
15 silvicultural treatments in accordance with the
16 groundrules, to conduct all operations in accordance
17 with the management plan and the groundrules, and to
18 construct roads to the standards that are specified in
19 the groundrules, at least those roads that are being
20 paid for by the Crown.

21 There are other obligations also, but
22 those are the ones that spring right to my mind. And
23 those fifth year review committees look specifically at
24 the agreement holder's performance vis-a-vis those
25 obligations. And that is what that Evergreen clause is

1 all about, the Minister reviews the performance at the
2 end of each five-year period, specifically: Is he
3 meeting his obligations.

4 If the answer is yes, the agreement is
5 extended; if the answer is no, the default is pointed
6 out, the Minister gives the agreement holder a period
7 of time in which to make good that default, after which
8 a subsequent re-review occurs.

9 If the company has still failed to meet
10 those obligations, then the Minister may terminate the
11 agreement. That is the purpose of the review.

12 Q. Do the reviewers do field
13 inspections?

14 A. They do. They sample inspect some
15 areas. They want to -- they do that, yes. Basically
16 what they do is they go over all of the records.

17 Q. All right.

18 A. All of the records of the cut: Did
19 they cut the areas that were allocated by the
20 management plan, did they cut in accordance with the
21 groundrules in the management plan, did they conduct
22 their treatments in accordance with them.

23 They will sample inspect, they will pick
24 at random or at will the ones that they want to see and
25 say: Here's the record, it shows it corresponds. We

1 would like to go to that area and see it. And they do,
2 they get a helicopter and they go there.

3 Q. So in every case in the five-year
4 review, there were ground inspections involved?

5 A. In every one that I am familiar with,
6 there were

7 Q. And how many is that?

8 A. I am familiar with five, personally.

9 Q. Was that one year's review system?

10 A. No, that was -- gee, how many am I
11 familiar with? Eight, two years' worth.

12 And I went along as an advisor to help
13 the team, the review committee conduct their job. I
14 was the gopher and I went to those sites and, as a
15 result of that, I am a firm believer in the FMA
16 program.

17 I unsuspected areas that were picked at
18 random that I'd have been proud to be the forester that
19 produced those results.

20 Q. Now, can you tell us approximately
21 how many sites were visited for each FMA? Did it vary,
22 was it consistent, how many?

23 A. Well, there is a time limitation and
24 I think too there is a practical consideration.

25 I mean, the purpose is to satisfy

1 themselves that the agreement holder is conducting his
2 operations in accordance with the agreement, and they
3 use the records basically to check that. The field
4 inspections are there as a sub-sample, if you wish.

5 How many areas were visited? I believe
6 that a day and a half or two days were allocated out of
7 the week's review.

8 Q. In each case?

9 A. Yes, in the cases with which I am
10 familiar, and a helicopter was used in order to get as
11 many spots as possible visited, and they were jumping
12 from spot to spot pretty quick. I would say --

13 THE CHAIRMAN: Did they cover more ground
14 then we did?

15 MR. HYNARD: Oh.

16 MR. MARTEL: Did they get lost?

17 MR. HYNARD: Well, did they get lost?
18 Never got lost. I can't remember the exact number, but
19 it would be in the order of a dozen, something like
20 that.

21 MS. SWENARCHUK: Fair enough.

22 THE CHAIRMAN: So was the idea, Mr.
23 Hynard, essentially that the environmental impacts
24 would have been covered off in the management plans and
25 the development of the FMA and the conditions

1 applicable to it, so that when they come to audit and
2 check to see whether the company has performed its
3 obligations, they would in effect be auditing as to
4 whether or not the environmental considerations taken
5 into account earlier had been met?

6 MR. HYNARD: Exactly.

7 MR. MARTEL: Mr. Hynard, do you agree
8 that part of the public concern, as expressed by many
9 people, is that maybe we don't monitor as much in the
10 field as the public would feel comfortable is going on?
11 Have you heard that?

12 MR. HYNARD: Well, it is hard to get a
13 solid grasp on how the public feels. I have always
14 felt with regard to the FMA program that it was a
15 problem of perception, not really understanding the
16 nature of the agreement and not really understanding
17 the performance of the agreement holder.

18 That has been my impression of the public
19 feeling about the FMA, there have been
20 misunderstandings that I think are perceptual.

21 MR. MARTEL: And not much feedback on
22 public thinking that what is going on in fact might not
23 be what they think is going on?

24 MR. HYNARD: I haven't heard that
25 expressed. That is not my sense, but I am not

1 constantly dealing with the public over FMA matters, so
2 I really am not in a position to know for sure.

3 MR. MARTEL: That too would be perception
4 though, I mean.

5 MR. HYNARD: Yes, it could be.

6 MR. MARTEL: Yes.

7 MS. SWENARCHUK: Q. Mr. Oldford, turning
8 to another subject. In the package of FFT
9 interrogatories, which is Exhibit 491, we look at
10 Question No. 17, we are concerned again with harvesting
11 modifications in the Clay Belt area.

12 Now, can you tell us approximately or can
13 anyone on the panel tell us approximately what
14 proportion of the Clay Belt is lowland site?

15 MR. OLDFORD: A. Mr. Greenwood was
16 involved with some work that we carried out on
17 identifying sites; prime sites, intermediate sites, et
18 cetera, in the northern region and his estimate would
19 probably be more accurate than mine.

20 Q. Mr. Greenwood?

21 MR. GREENWOOD: A. I was involved in a
22 survey where we utilized existing soil information in
23 classifying sites, and it was my recollection that in
24 terms of upland and lowland it was in the 50 per cent
25 or less range.

1 In terms of some of the summaries - I
2 have some of the summaries right with me - the lowland
3 sites would normally -- well, it is difficult to break
4 it down much more than that. The difficulty is that
5 some of the lowland sites are very productive and the
6 survey was looking more at productivity of site than it
7 was at actual lowland. .

8 Most of the poor lowland, and a lot of
9 the lowland would be poor growth, would have been a
10 classification 3 in the survey we were doing, and some
11 of those 3s didn't get larger than 30 per cent, but
12 some of the 2s would have been lowlands as well.

13 So it was my recollection that it was 50
14 per cent or less.

15 Q. For that you mean probably around 50
16 per cent; is that what you mean?

17 A. Yes.

18 Q. Okay. And, Mr. Oldford, if we look
19 at Question No. 17, again in my pursuit of some numbers
20 here, I think you indicated earlier that modified
21 operations, meaning modified equipment, are really only
22 necessary in the Clay Belt area on lowland sites?

23 MR. OLDFORD: A. That would be a good
24 generalization, yes.

25 Q. And in response to paragraph (b) of

1 the Clay Belt -- of the question, the indication is
2 that in 1986-87 approximately 15 per cent of Clay Belt
3 harvest area was regenerated using those modified
4 operations.

5 So should we conclude that probably about
6 30 per cent of the harvest area - rather, 85 per cent
7 of the harvest area which would include a percentage of
8 lowland sites, probably a good percentage, were
9 harvested without those modifications?

10 A. No, we couldn't, the reason being the
11 harvest and regeneration option whereby you protect
12 advanced regeneration is one option for renewing those
13 lowland sites. Another option might be to harvest
14 using basically the same equipment in not such a rigid
15 layout of operations with the objective to planting
16 some sites.

17 I guess the other thing you would have to
18 consider, Ms. Swenarchuk, maybe in that particular year
19 the cut was not equally split in relation to the split
20 of the lowland to total area in the Clay Belt. So you
21 would have to take a particular look at that to find
22 the answer.

23 Q. Right. And so presumably we don't
24 know to what extent the cut in that year was lowland
25 and upland?

1 A. That is correct.

2 Q. All right.

3 MS. SWENARCHUK: I am about to change
4 ground, Mr. Chairman, if you want to take a break now.

5 THE CHAIRMAN: Okay. We might as well
6 take it now for 20 minutes. You'll get that other
7 exhibit at this time?

8 Thank you.

9 ---Recess taken at 11:55 a.m.

10 ---Upon resuming at 12:25 p.m.

11 THE CHAIRMAN: Be seated, please.

12 MR. FREIDIN: Mr. Chairman, in relation
13 to the FMA matter, the FMA agreement which is in Panel
14 No. 16 commencing at page 168 is a standard agreement.
15 It is not a copy of an executed agreement, it is a
16 standard agreement which I am advised is the agreement
17 used in 1987. There are schedules attached. The
18 schedules have not been filled out.

19 Ms. Swenarchuk as advised that she would
20 like an up-to-date agreement with I think the schedules
21 filled out so she can get some sense of the kind of
22 information that is in there and I have agreed to do
23 that.

24 So I can't produce that today, but
25 hopefully early next week.

1 THE CHAIRMAN: Very well.

2 MS. SWENARCHUK: Mr. Freidin, I have
3 access to I think all the agreements up to 1987, so
4 these agreements are not confidential documents, right,
5 we can just have a current agreement to talk about; can
6 we?

7 MR. FREIDIN: I will produce a current
8 agreement which you can talk about, yes.

9 THE CHAIRMAN: Are we correct in assuming
10 that these agreements or on public file and available
11 to the public, once signed?

12 MR. HYNARD: Yes, that's correct.

13 MS. SWENARCHUK: Q. Mr. Greenwood, at
14 page 227...

15 MR. GREENWOOD: A. Yes, I have it.

16 Q. In the second paragraph from the
17 bottom, this entire section is about potential nutrient
18 loss in harvesting and Mr. Armson testified to this
19 section, but you wrote the paper I believe; right?

20 A. That's correct.

21 Q. So you're talking about nutrient
22 loss, at least initially, and then you go on to talk
23 about the proper application of the full-tree harvest
24 method and you indicate in the third paragraph:

25 "In order to PREVENT potential

1 productivity loss, forest managers could
2 consider whether full-tree harvesting is
3 appropriate where the recuperative
4 potential of the site suggests
5 potentially unsatisfactory rate of growth
6 in the next rotation."

7 You say they could consider that, do
8 they?

9 A. Well, I think the evidence was led
10 that at the current time the basis of scientific
11 knowledge isn't such that this particular issue of
12 nutrient removal is being considered to any great
13 extent by the field people.

14 Q. Okay.

15 A. The could and the should in the next
16 sentence -- or would, I should say, both are referring
17 to the fact that should the scientific knowledge base
18 suggest a problem or confirm a problem that these are
19 ways -- in other words, if this potential problem was
20 to become a reality, then these are ways in which it
21 could be prevented.

22 Q. In the last paragraph then you go on
23 to say:

24 "The effects of nutrient removal or
25 unequal redistribution could be MINIMIZED

1 by harvesting hardwoods in the leafless
2 state, applying full-tree harvesting in
3 winter when twigs and needles are brittle
4 and more apt to remain on site due to
5 breakage, rapidly regenerating the site
6 to accelerate nutrient capture and
7 litterfall, selecting a regeneration
8 species with low nutrient demands...
9 selecting a rotation period suitable to
10 the recuperative ability of the site and
11 by ensuring the integrity of nutrient
12 reserves on sensitive site."

13 Then you go on to say in the next
14 paragraph:

15 "Since the potential for productivity
16 loss in Ontario is not considered
17 significant..."

18 Productivity loss, not just nutrient removal:

19 "...given current harvest practices and
20 rotations, measures to prevent or
21 minimize these potential effects do not
22 normally form part of operation
23 decision-making at this time."

24 Now, if we look to the previous
25 paragraph, I understood from testimony of various

1 members of the panel that these types of strategies are
2 now employed: Harvesting hardwoods in the leafless
3 state, applying full-tree harvesting in winter when
4 twigs and needs are brittle and apt to remain on the
5 site. Those things are not now done, then is that --

6 A. No, obviously --

7 Q. What does that paragraph mean?

8 A. You're obviously reading it wrong.

9 That means that you could specifically apply those
10 techniques to sites that you were concerned about
11 productivity loss from nutrient removal, if in fact
12 that became a concern.

13 So, in other words, the full-tree,
14 tree-length question that was discussed at length by
15 Mr. Armson, it doesn't need to be an on/off type of
16 question, it is not a matter: Do you full-tree harvest
17 this or do you only tree-length harvest this site.
18 There are ways of minimizing the effects of full-tree
19 harvesting if in fact scientific knowledge shows that
20 there is a reduction in productivity as a result of
21 that practice.

22 In other words, if that -- the evidence
23 was that Ontario Forest Research Council was going to
24 be contacted with regard to further work in this area
25 and if in fact further work identified sites it

1 wouldn't be a matter of then strictly allocating no
2 full-tree harvest for those sites, there are other
3 measures that could be taken to reduce the amount of
4 nutrients removed from the site, to reduce the amount
5 lost in other ways, to reduce the nutrient demand on
6 that site, to increase for instance the recovery period
7 on that site.

8 So there are other ways of minimizing the
9 effect of that nutrient removal other than just saying
10 no full-tree harvest on site.

11 And that's what I was trying to point out
12 here that, again, with the potential effect, if it
13 becomes real, in actuality, there are ways of
14 minimizing it, there are ways of preventing it.

15 Q. So that paragraph only refers to
16 prevention of nutrient loss?

17 A. With the underlying assumption that
18 there is also productivity loss. There is nutrient
19 loss from the sites now, that's already been given in
20 evidence.

21 Q. All right.

22 A. And your original question was: Are
23 these done now. Obviously there are areas that are
24 harvested in the leafless state now.

25 Q. Right.

1 A. But it is not a a prescription that's
2 given to a site in a specific relationship to nutrient
3 loss.

4 Q. And if you will recall I reviewed
5 with Mr. Armson the references to shallow sites,
6 fragile sites, sensitive sites in the articles that he
7 was relying on.

8 And I take it, is it your view, Mr.
9 Greenwood, that those caveats expressed by the authors
10 of those articles do not require any particular
11 measures to be taken in the protection of those sites
12 in harvest now?

13 A. My evidence would be --

14 Q. With full-tree harvesting.

15 A. Correct. I would agree with Mr.
16 Armson on that point.

17 Q. All right. Now, if we look at the
18 section on water yield which starts at page 233, this
19 also was discussed by Mr. Armson to some extent.

20 Now, isn't it true, Mr. Greenwood, that
21 at this time changes in water yield related to harvest
22 are not particularly considered or taken into account
23 in the timber management planning?

24 A. Exactly what do you mean by
25 considered or taken into account?

1 Q. Well, you tell me. Is change in
2 water yields related to harvest taken into account when
3 planning for timber management?

4 A. It is implicit in the types of
5 decisions that are made. It is not spoken to directly
6 in timber management, no. It is part of the basis of
7 understanding that a forester works from.

8 I am thinking, for instance, of the
9 example that Mr. Armson gave of lateral flow of water
10 versus vertical flow of water within the soil. If you
11 are working in the Clay Belt, the potential effects on
12 lateral flow of water are certainly in the mind of the
13 foresters making prescriptions in those areas.

14 In terms of the actual water yield as
15 discussed here, and the effects of canopy removal on
16 evapotranspiration, again, that's a biological fact
17 that foresters are aware of, but I wouldn't think you
18 would see mention in any conscious way in management
19 plan.

20 Q. All right. It's not referred to in
21 the plans?

22 A. No.

23 Q. Okay. Now, would you agree with me
24 that in the Clay Belt area after harvest it is possible
25 to have summer long saturation of the forest floor

1 which turns the sites basically into bogs?

2 A. I'm sorry, could you repeat that,
3 please?

4 Q. In the Clay Belt area after harvest
5 in the summertime there are occasions when the forest
6 floor becomes saturated and essentially turns into a
7 bog through the summertime?

8 A. I certainly couldn't state it in that
9 exact way, no. There are lowland areas within the Clay
10 Belt where the water table is near the surface and it
11 is still near the surface following harvest.

12 If you are suggesting that what was
13 sub-surface water table is now a flooded area, then I
14 would not agree, no.

15 Q. You haven't seen examples of that?

16 A. No. I know what you are referring
17 to. There are sites where there is not lateral
18 drainage which is probably the most common type of
19 drainage within the Clay Belt area, it's impeded it,
20 doesn't drain down, and lateral drainage is not
21 affected by the harvest unless something blocks it or
22 dams it.

23 There have been cases within the Clay
24 Belt area where roads have dammed up that lateral flow
25 and, therefore, flooded the site on one side and dried

1 it out on the other, but that has not been an effect
2 directly of harvest on the site.

3 There are some sites where there is not
4 lateral flow and there is also not infiltration into
5 the ground, it is blocked. Those sites are generally
6 so poor in nutrient status that they do not support a
7 merchantable stand and, therefore, they are not
8 harvested anyways.

9 Q. Okay. So what you're saying is that
10 in your experience you have not seen harvest create the
11 effect of, as I say, turning a lowland site in the Clay
12 Belt into a bog through the summer?

13 A. Not in my experience.

14 Q. Right.

15 A. And in this particular question I
16 also consulted two other foresters, one of them a
17 life-time forester in the Clay Belt area and he agreed
18 with that, and the other one also currently still
19 working in the Clay Belt, agreed with it as well.

20 The only incidences either one of those
21 people have seen is where road have dammed lateral
22 drainage.

23 Q. At page 242.

24 A. Yes.

25 Q. Again you have indicated a number of

1 ways that prevention and minimization of accumulated
2 surface water can occur. This is the third paragraph.
3 Halfway through you have say:

4 "Haul roads, primary skid roads and
5 landings be located so as not to
6 interfere with natural lateral drainage."
7 Are they normally located that way?

8 A. Certainly as this effect has become
9 better known, they have been, yes. The drainageways
10 within lowland areas are generally identified by a
11 slight change in vegetation, particularly the
12 presentation of alder where there isn't the presence of
13 alder on other sites, and also through aerial
14 photointerpretation, these types of factors can be
15 identified.

16 And it is my understanding that now when
17 the cut is being laid out, these factors are taken into
18 account.

19 Q. And over what time period -- are you
20 saying that is a change in practice?

21 A. I'm suggesting that -- I couldn't put
22 a timeframe on that. For some people it may have been
23 practice for quite a long time, but it has also I think
24 came out of the advent of the forest eco-system
25 classification which has drawn or made the

1 relationships between vegetation and site that much
2 clearer and also it has come about as a result of the
3 modified equipment which has made summer harvest in
4 these areas more prevalent.

5 So it's something again I would say
6 that's evolved in the 80s on some areas, and with some
7 foresters it may have been going on for quite some time
8 where they understood those relationships.

9 Q. But you're not clear on that?

10 A. No, I couldn't state that.

11 Q. And if can I specify again, what is
12 the source of your information for your conclusion that
13 this is the apparently normal practice now; discussions
14 with other people?

15 A. Discussions with other people. Also,
16 when you see practices such as that that I showed with
17 logs bridging a drainageway, the understanding of
18 drainageways. In the forest eco-system classification
19 there is a photointerpretation section to it in 9 --
20 Section 9, as I understand it, and the site types that
21 would reflect a drainageway, the relationships of
22 vegetation in that type of site is shown.

23 If you were asking whether I surveyed the
24 foresters in the Clay Belt, no, I did not.

25 Q. Okay. The forest eco-system

1 classification describes sites in the undisturbed
2 condition prior to cutting; does it not?

3 A. Yes, it does.

4 Q. And after cutting, presumably the
5 situation changes?

6 A. Yes, it does.

7 Q. Does the FEC provide guidelines or
8 information on how to deal with the changed condition?

9 A. Not that I'm aware of.

10 Q. Now, let's look back at the Shurman
11 and Mackintosh article which starts at page 469. You
12 will agree with me that the Appendix starting 494 is
13 the appendix to this article?

14 A. Yes. In fact, I did go through the
15 paper, there is no reference to the appendixes in the
16 paper and it is a little confusing in that normally
17 they are referred to and, as well, the appendix in this
18 paper, the numbers change.

19 If you go to page 496, the title is
20 Appendix 5, even though the first three pages are not
21 given numbers and I just -- I'm still confused as to
22 exactly where this particular appendix comes from,
23 whether it was authored by the major authors, whether
24 they've removed it from another paper and inserted it
25 in this paper, or exactly what the reasons are.

1 Q. Well --

2 THE CHAIRMAN: We have got the original
3 of this paper.

4 MS. SWENARCHUK: Q. It is your witness
5 statement. Can somebody please tell us what has
6 happened here?

7 MR. GREENWOOD: A. I have an original,
8 but it unfortunately isn't with me.

9 MR. FREIDIN: We will check that out and
10 advise what happened here.

11 MS. SWENARCHUK: Q. So at this point,
12 Mr. Greenwood, you don't know who wrote the
13 recommendations that appear on pages 503 to 504?

14 MR. GREENWOOD: A. No. I took a chance
15 to flip through this paper and, again, there are a
16 number of things in this Appendix 5 that are repeats of
17 explanations that are given within the body of the
18 paper.

19 Normally an appendix supports what's
20 within the paper, but an author wouldn't rewrite
21 something that they have already written in the body
22 paper. And this is what makes me think that this is
23 somehow supplementary to the paper.

24 It may have been that the authors wrote
25 it at another time, but the recommendations, therefore,

1 on page 8 which you will notice is in computer type
2 which is slightly different than the type of the rest
3 of the page, would tend to suggest that it relates to
4 the appendix and not the rest of the paper.

5 THE CHAIRMAN: Well, why don't we leave
6 it until next week, because there is no sense asking a
7 bunch of questions on something when we're speculating
8 what the document is all about in the first place.

9 You could look at that over the weekend,
10 the original?

11 MR. GREENWOOD: I will attempt to
12 determine what Appendix 5 is. I will look at the
13 original and see if there was an appendix before 5.

14 THE CHAIRMAN: Would you mind, if you can
15 get your hands on it, to bring the original to the
16 hearing next week?

17 MR. GREENWOOD: I will attempt to do
18 that. In fact, there may be an original in our library
19 here.

20 MS. SWENARCHUK: Q. Well, did you
21 include this paper in the document? Did you make the
22 decision to include it?

23 MR. GREENWOOD: A. Yes, I made the
24 decision to include it.

25 Q. But you don't remember whether this

1 formed part of it?

2 A. Oh, I know the appendix definitely
3 formed part of the original paper. It was within the
4 covers of the original paper, yes.

5 Q. Well, I think that's all we need to
6 go ahead and discuss it.

7 A. The question was whether those were
8 the recommendations of the paper or pertaining to the
9 appendix. When you asked me if these were the
10 recommendations, I said no, the recommendations were
11 back on page -- or the conclusions were back on page 10
12 pertaining to the first half of the paper.

13 THE CHAIRMAN: Mr. Greenwood, could it be
14 possible that in your copying the paper something was
15 left out?

16 MR. GREENWOOD: That's possible.

17 MS. SWENARCHUK: All right. I will wait
18 for it then.

19 Q. Now, in your paper on soil effects,
20 Mr. Greenwood, you made reference again to the
21 President's Panel in the U.S., the 1973 Report of the
22 President's Panel which Mr. Armson also referred to.

23 Do you recall that?

24 A. Yes, I made reference to it, but
25 which page are you referring to?

1 Q. Unfortunately, I don't have the page
2 number at this point, but that paper did not refer at
3 all to the boreal forest; did it?

4 A. In actual fact the paper -- some of
5 the papers contained within that paper did refer to
6 boreal forest, yes, it did.

7 Q. So when you refer to that paper you
8 are referring to specific parts of it that refer to the
9 boreal forest?

10 A. That and I refer to that as well as
11 where those authors are talking about the general
12 ecology or the general science as well.

13 Q. Now, those papers that refer to the
14 boreal forest are not included in this volume; are
15 they?

16 A. The paper by Mr. Stone which is on
17 page 410 does include references to the boreal forest
18 within his paper, I can't remember how many or where,
19 but I know he does refer to the boreal forest, and he
20 also refers to articles which were -- within the
21 scientific literature that did studies in the boreal
22 forest.

23 Q. Going back to page 248 of your paper.

24 A. Yes, I have it.

25 Q. The second paragraph:

1 A. Correct.

2 Q. "If sites or parts of sites have been
3 subject to compaction or rutting, natural
4 recovery processes also ameliorate
5 effects. Frost action, freezing/thawing,
6 wetting/drying and the activities soil
7 organisms and routes are the major
8 natural processes acting to loosen
9 compacted soils. These actions also
10 reduce both density through either volume
11 changes, breaking the soil into its
12 structural units or loosening and mixing
13 the soil."

14 Now, would you agree that frost action,
15 freezing, thawing wetting and drying, can also cause
16 dislocation and heavy physical damage to roots and
17 feeders of trees?

18 A. I'm sorry, again?

19 Q. Okay.

20 A. Is there an article there you are
21 reading from, because I didn't catch the last of it.

22 Q. I'm not reading from an article, no.

23 A. Okay, just slowly.

24 Q. I am talking about frost action now,
25 freezing, thawing, wetting and drying.

1 A. Yes.

2 Q. And you've indicated that they have
3 the potential to ameliorate the effects of rutting.

4 A. Right.

5 Q. And would you not also agree that in
6 other sites they can cause dislocation and heavy
7 physical damage to roots and the feeders of trees?

8 A. Yes. That would be -- well, not
9 wetting and drying, but freezing and thawing can.
10 Frost action certainly can.

11 Q. And that could compound the damage
12 caused by rutting? In other words, it could add
13 further negative impacts on the site that might have
14 been damaged by rutting earlier?

15 A. Well, I wouldn't draw a direct
16 relationship between rutting, for instance. I was
17 referring to compaction here, not -- compaction -- I
18 would separate compaction as a result of rutting from
19 compaction without rutting, first of all.

20 Compaction as a result of rutting creates
21 a problem for renewal, mainly because of both standing
22 water and ponding that it creates, and you wouldn't
23 plant on that site, so what you suggested wouldn't
24 apply in a rutted area. If it was a dry rut, a shallow
25 rut it would. So I'm speaking more to the example you

1 gave for the case where it has been compacted.

2 Now, you can have frost heaving up
3 seedlings with or without compaction. It is related
4 more to the texture of the soil. So to say that it is
5 compounding an effect, I can't make that relationship.

6 It could take place as well as the
7 effect, yes, but it is not going to interact and create
8 some greater effect because it would happen anyways.

9 Q. So it will - rather than use the word
10 compound - it could add to the negative effect?

11 A. Yes, it could add to a negative
12 effect. But frost heaving of seedlings is directly
13 related to the exposure of that particular soil type.

14 If your organic matter was still in place
15 and compaction took place under the organic matter,
16 frost heaving wouldn't be at issue. So it would be a
17 combination of factors that would allow them to add to
18 each other, it wouldn't just happen every time.

19 Q. I wasn't suggesting it happened every
20 time. Can we look at 253 with respect to
21 micro-climate, and you've said in the second paragraph
22 on the page that:

23 "Harvesting, particularly clearcutting,
24 increases wind movement near the ground,
25 increases maximum temperatures and

1 decreases minimum temperatures, increases
2 evaporation from litter in the soil
3 surface but decreases atmospheric
4 humidity."

5 Now, would you agree that this could make
6 less moisture available on the site?

7 A. Yes, less moisture than that under
8 the original canopy.

9 Q. All right. So then, when we go back
10 to page 238 and at the bottom of the paragraph you
11 indicate an instance in which the choice of the
12 clearcut harvest system could enhance the availability
13 of moisture. This would be very site-specific; would
14 it not, and if in some clearcut areas moisture
15 availability is enhanced, in other areas it would not
16 be enhanced.

17 Would you agree with that?

18 A. Not necessarily. Both actions that
19 you refer to, one on 253 and on 238 could be taking
20 place at the same time. Both of those actions are
21 natural actions. Following a wild fire the same thing
22 happens, because you don't have a canopy species
23 evapotranspiration is reduced and you have more water
24 in the soil.

25 But because you have opened the site to

1 full sunlight and wind, you have greater evaporation
2 from the site. So they would be happening at the same
3 time.

4 Q. When you talk about enhancing the
5 availability of moisture on page 238, presumably you
6 are talking about enhancing its availability for
7 regeneration; are you not?

8 A. Yes, I am.

9 Q. And are you saying then on page 253
10 that the increase in evaporation is also enhancing
11 availability of moisture for regeneration?

12 A. On 253, I don't mention enhancing
13 anything for regeneration, do I?

14 Q. No, I am saying, when you talk about
15 increasing evaporation there.

16 A. No, that would not enhance moisture
17 for renewal.

18 Q. Right. And back to page 254. The
19 second paragraph:

20 "Should micro-climate effects be
21 determined to be detrimental to forest
22 establishment or growth, again, they can
23 be prevented, minimized or mitigated
24 through controlled harvest layout..."

25 Harvest system, I think that was supposed to be.

1 A. That's correct.

2 Q. "...degree of utilization, protection
3 through winter cut or establishment of
4 ground vegetation and choice of
5 regeneration species."

6 Now, is it the normal practice in forest
7 management planning to consider micro-climate effects?

8 A. Yes, it is.

9 Q. So those -- you are saying these
10 practices are normally done?

11 A. Yes.

12 Q. Okay. How are those effects
13 investigated before a cut?

14 A. How are they investigated? In what
15 specific way?

16 Q. How do you determine what the effect
17 of the cut is going to be on the micro-climate?

18 A. Well, most of the effects follow the
19 type of cut and they wouldn't vary a lot by site. So
20 once you knew that you were going to be applying a
21 specific silvicultural harvest system to an area, it
22 would imply a number of effects.

23 When I gave my evidence-in-chief, I think
24 I gave some examples of that. How, if you know you're
25 going to clearcut you are going to have increased soil

1 temperature, increased air temperature, et cetera. So
2 if that increase in temperature or if a decrease in
3 temperature by only removing part of the canopy was
4 detrimental, that would be taken into account in the
5 silvicultural prescription. If that silvicultural
6 prescription had to impact back on the harvest, such
7 would be the case.

8 I am thinking of an example, for
9 instance, that I think Mr. Hynard gave with respect to
10 shelterwood harvesting and its effects on micro-climate
11 on a specific species. And the application of the
12 shelterwood method, in that instance, is in fact
13 applying a degree of control on light, on temperature,
14 on moisture and that application of the shelterwood
15 system is in fact an application of harvest system to
16 affect micro-climate.

17 Q. Would you agree that micro-climatic
18 changes could vary considerably over the size of a
19 large clearcut?

20 A. No -- well, they could, but I
21 wouldn't relate them necessarily to the size of the
22 clearcut. The relationship would be to the amount of
23 vegetation still on the site.

24 Q. Let me specify. Let's use Mr.
25 Oldford's figure for what is a large clearcut, I

1 believe you said three or 4,000 hectares?

2 MR. OLDFORD: A. Your question to me
3 was: What would a large clearcut be, and I said three
4 to 4,000 hectare.

5 Q. Right. So over a 4,000 hectare site,
6 which is quite a number of square miles - it may be
7 about ten - wouldn't there be differences in the
8 micro-climatic changes?

9 MR. GREENWOOD: A. I couldn't answer
10 that unless I had an exact example of what that
11 clearcut was like. For instance, if that four to 5,000
12 acre was it, or hectare?

13 Q. Hectare.

14 A. Hectare clearcut was only a partial
15 clearcut throughout the whole area, then the effect
16 would be fairly uniform across that area.

17 If in fact there were portions of that
18 clearcut that still had standing unmerchantable timber
19 in it and portions that were completely clear, there
20 would obviously be a dramatic difference between where
21 there was still standing timber and where it was clear.

22 So it would be variable depending on what
23 was left on the site following the harvest.

24 Q. And are you saying then that if -
25 let's take a theoretical - 4,000 hectare clearcut with

1 very little residual, that over that entire, what is it
2 approximately ten square miles you, would expect few
3 variations in the micro-climatic changes?

4 A. No, there could still be variations
5 in those micro-climatic changes because they would
6 relate to things such as topography and aspect.

7 Q. Okay.

8 MS. SWENARCHUK: Mr. Chairman, I have a
9 number of questions, all of which relate to the
10 Mackintosh paper and a number of more questions which
11 relate to the papers that Mr. Hynard is going to be
12 looking at before moving on to totally different areas.

13 I would just as soon stop now and pick
14 that up on Monday, as move into --

15 THE CHAIRMAN: Very well. Can you give
16 us an indication of whereabouts you are in your
17 cross-examination, bearing in mind that we have Dr.
18 Euler to go, whom I suspect you will want to question
19 as well?

20 MS. SWENARCHUK: About half way.

21 THE CHAIRMAN: So that you would be going
22 in to Tuesday?

23 MS. SWENARCHUK: I expect so, yes.

24 THE CHAIRMAN: As well. The reason I am
25 asking is because we have to notify the ones following

1 you.

2 MS. SWENARCHUK: Yes. I have already
3 discussed it with Mr. Mander.

4 THE CHAIRMAN: Very well. We will
5 adjourn until 1:00 p.m. on Monday.

6 Thank you.

7 ---Whereupon the hearing adjourned at 1:00 p.m., to be
8 reconvened on Monday, April 10th, 1989, commencing
9 at 1:00 p.m.

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